TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL

BATTERY FUNCTIONAL DIAGRAMS

HAWK AIR DEFENSE GUIDED MISSILE SYSTEM

This copy is a reprint which includes current pages from Changes 1 Through 11

DEPARTMENT OF THE ARMY

JUNE 1979

WARNING

RADIATION HAZARD

This equipment contains the following radioactive items:

Nomenclature	*NSN*	*Isotope*	*Amount (Microcuries)*

Refer to TM 8-261, TM 38-250, and TB 48-0116 for information relative to shipping, storage, handling, and disposal of radioactive material.

FIRST AID FOR RADIOACTIVE CONTACT

The following first aid procedure for wounds caused by anything coated with a radioactive particle material represent the only reasonable first aid treatment which would possibly be available:

a. Stimulation of mild bleeding by normal pressure about the wound and by use of suction cups.

WARNING

Do not suck the wound by mouth. The wound must be washed with soap and flushed with plenty of clear water

b. If the wound is of the puncture type, or the opening is quite small, an incision should be made to promote free bleeding and to facilitate cleaning and flushing of the wound.

c. Evacuate patient to a medical facility where monitoring of the wound can be accomplished. All such wounds should be examined by a medical officer.

d. For wounds involving the extremities, pending medical attention, place a lightly constricting band (tourniquet) 2 to 4 inches closer to the heart than the site of the wound. The band should be tight enough to halt the flow of blood in superficial blood vessels but not tight enough to stop the pulse (arterial flow).

CLEANING SURFACES ON WHICH TUBES HAVE BEEN BROKEN

Wet Method. Put on rubber or plastic gloves. Pick up large fragments with forceps then, using a wet cloth, wipe across the area Make one wipe at a time and fold cloth in half, using the clean side for wiping each time. When cloth becomes too small, discard and start again with a clean piece of cloth. Care must be taken not to rub the radioactive particles into the surface being cleaned by using a back and forth motion. All debris and cloths used for cleaning should be sealed in a container such as a plastic bag, heavy waxed paper, ice cream carton, or glass jar for disposal.

WARNING FOR RADIO-FREQUENCY RADIATION HAZARD

Radio-frequency (rf) radiation from radar antennas and associated equipment is a potential hazard to personnel. Rf radiation is not cumulative but it can be hazardous. It heats the body tissues, and, if the radiation intensity is sufficiently high, will permanently damage the tissue. This damage is not immediately apparent.

Precautions should be taken to ensure that personnel are not exposed to rf radiations of hazardous intensity levels. Personnel who must be within the hazardous distances for the below listed radars should be instructed not to place themselves on the radiating side of the antenna, and to never look into a transmitting horn or open waveguide which is connected to an energized transmitter.

Personnel are prohibited from entering areas where they may be exposed to levels of rf radiation above 10 milliwatts per square centimeter (10 mw/cm^2). This level, though not considered hazardous, is stipulated by AR 40-583 as the maximum permissible exposure level for personnel.

A power intensity of at least 10w/cm2 is present along the axis of each radar's transmitted beam, for the distances listed below. These distances are based on calculations and actual measurements and may be used as a guide to prevent radio-frequency radiation injury. In each instance, radiation intensity rapidly diminishes as the distance is increased.

ANTENNA	**DISTANCE**
High-powered Illuminator Radar	111.5 m (366 ft)
Cw Acquisition Radar non-scanning	74 m (243 ft)
scanning	36 m (118 ft)
Pulse Acquisition Radar	15.2 m (50 ft)
Range-only Radar	45.1 m (148 ft)

The 36 m distance for the scanning CWAR antenna does not mean the system constitutes a hazard to personnel while the antenna is scanning. When the antenna stops scanning and is stationary, those systems capable of producing power densities greater than 50 mw/cm^2 must be controlled so that under no circumstances will personnel be exposed to intensities equal to or greater than 50 mw/cm^2. When the radar is energized to full radiate, personnel must not be within 74 meters (243 feet) the antenna along the designated azimuth.

No radiation hazard exists at radar ground level if the radars are not depressed below zero degrees elevation. When at all-possible during maintenance, however, place the antenna at a high elevation. Personnel are restricted from the area atop the radars or other elevated locations in front of the antennas when radiating.

Personnel may move in and around the CWAR to zero range at ground level provided they are below the horizontal center line of the antennas. There is no height restriction to either side or rear of the antennas.

Potentially hazardous power density levels do not exist in the radiation field of the pulse acquisition radar when scanning.

The above information is applicable to typical HAWK sites. The services of the U.S. Army Environmental Hygiene Agency are available, in accordance with the provisions of AR 40-583 for the evaluation of potential radio-frequency hazards at sites where unusual operating or site conditions may exist.

WARNING

DANGEROUS VOLTAIGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shutoff before beginning. work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Use extreme caution when operating equipment protected by interlocks. Ensure that interlocks (doors, panels, and drawers) are functioning properly. (TM 9-1425-525-12-4)

Be careful not to contact high-voltage connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through the vital organs of the body.

WARNING

Do not be misled by the term "low voltage." Potentials as low as 50 volts may cause death under adverse conditions.

For artificial respiration, refer to FM 21-11.

EXTREMELY DANGEROUS POTENTIALS
greater than 500 volts exist in some of the units tested in this manual. Warnings covering these units are contained in the individual chapters.

For the pulse acquisition radar:

MECHANICAL HAZARD

When performing maintenance procedures in the vicinity of the antenna, ensure that the antenna SAFE/ OPERATE switch, located on the receiver-transmitter group, is in the SAFE position, and the stow lock is engaged.

For the IFF antenna:

MECHANICAL HAZARD

When performing maintenance procedures in the vicinity of the IFF antenna, ensure that both of the two antenna safety switches (one located on the IFF antenna pedestal and the other on the whip antenna base) are set to SAFE. In addition, not more than three personnel should occupy the roof of the ICC or PCP at any time.

For the cw acquisition radar:

MECHANICAL HAZARD

When performing maintenance procedures in the vicinity of the antenna, ensure that the antenna SAFEITY SWITCH, located on the radar set group, is in the SAFE position.

For the range-only radar:

MECHANICAL HAZARD

When performing maintenance procedures in the vicinity of the antenna, ensure that the antenna SAFETY SWITCH, located on the base of the pedestal, is in the SAFE position.

For the high-powered Illuminator radar:

MECHANICAL HAZARD

When performing maintenance procedures in the vicinity of the antenna, ensure that the antenna PEDESTAL SAFETY SWITCH, located on the motor-generator assembly, is in the SAFE position.

For the launcher:

MECHANICAL HAZARD

When performing maintenance procedures in the vicinity of the LCHR boom, ensure that the correct LAUNCHERS SAFE-OPERATE-ALERT switch for the LCHR to be checked, located on the launching section control box, is set to the LAUNCHERS SAFE position.

WARNING

EXPLOSIVES

Intercept-aerial guided missiles MIM-23B, MIM-23C, MIM-23D, MIM-28E, and MIM-28F contain explosives. All applicable safety regulations will be strictly enforced. Explosive components containing electrical wiring must be protected at all times from stray voltages or induced electrical currents.

Handling operations should not be performed during electrical storms.

WARNING

X-RAY HAZARD

X-rays exist within the PAR when radiating.

The X-rays are emitted from stabilotron tube QK680(V5) and thyratron tube 5949A(V3). Do not operate the PAR with the receiver-transmitter screened doors open or the shield removed from V3.

Failure to heed the warning may result in unnecessary exposure to low-level radiation. The severity of this exposure damage is dependent on the proximity of the source (tube) and the length of exposure.

WARNING

X-RAY HAZARD

X-rays exist within the HIPIR when radiating.

The X-rays are emitted from PA klystron tube VA868(V2). Do not operate the HIPIR with the protective tube shield removed from V2.

Failure to heed the warning may result in unnecessary exposure to low-level radiation. The severity of this exposure damage is dependent on the proximity of the source (tube) and the length of exposure.

WARNING

DANGEROUS CHEMICALS
are used in the operation
of this equipment

DEATH
may result if personnel fail
to observe safety precautions

The following is a list of chemicals used in the operation or maintenance of the equipment in this manual, including proper care and handling procedures and corrective actions (fire and first aid procedures).

Item (NSN / APN)	Care and Handling Procedures	Corrective Actions
Methyl chloroform **1, 1, 1- trichloroethane**	Flammable. Avoid heat, sparks, and open flames.	Use $C0_2$ or dry chemical extinguisher.
	Excessive inhalation can cause drowsiness, dizziness, drunkenness, unconsciousness, and death at extreme doses.	Remove victim to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
	Avoid prolonged or repeated contact with skin. Wear protective gloves.	Wash skin promptly and thoroughly with flowing water or shower for 5 to 15 minutes.
	Avoid contact with eyes. Do not wear contact lenses when working with this material. Wear safety goggles.	Flush eyes promptly with water for 5 to 15 minutes.
	Avoid swallowing.	Do not induce vomiting. Get medical attention.
Electrolyte (sulfuric acid)	Non-flammable. Can ignite finely divided combustible materials.	Use C02 or dry chemical extinguisher.
	Vapors can cause irritation of nose and throat.	Remove victim to fresh air. If not breathing, perform artificial respiation. Get medical attention.
	Avoid contact with skin. Can cause severe irritation, burns, and ulceration. Wear safety clothing.	Remove soaked clothing promptly. Wash skin thoroughly with large amounts of water. Get medical attention.
	Avoid contact with eyes. Can cause severe irritation, corneal damage, and blindness. Wear safety goggles.	Flush eyes promptly with large amounts of water. Get medical attention.
	Avoid swallowing. Can cause severe damage or death.	Give victim large amounts of water, if conscious. Get medical attention.

WARNING

DANGEROUS CHEMICALS
Continued

Item (NSN / APN)	Care and Handling Procedures	Corrective Actions
Dry cleaning solvent type P-D-680	Flammable. Avoid heat, sparks, and open flame.	Use $C0_2$ or dry chemical extinguisher.
	Excessive inhalation can cause head ache, dizziness, and nausea. Use with adequate ventilation. When heated, may yield carbon monoxide.	Remove victim to fresh air. If not breathing, perform artificial respiration. Get medical attention.
	Avoid prolonged or repeated contact with skin.	Wash skin promptly and thoroughly with mild soap and water. Apply skin cream.
	Avoid contact with eyes. Vapor is irritating to eyes. Do not wear contact lenses when working with this material. Wear safety goggles.	Flush eyes promptly and thoroughly with water. Get medical attention.
	Avoid swallowing.	Do not induce vomiting. Get medical attention.
Butyl alcohol OC 265	Extremely flammable. Avoid heat, sparks, and open flame. Can ignite under almost all normal temperatures.	Use CO_2 or dry chemical extinguisher.
	Vapors are toxic. Can produce symptoms of intoxication. Use with adequate ventilation.	Remove victim to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
	Avoid contact with skin.	Remove soaked clothing promptly. Wash skin thoroughly with water for 15 minutes minimum. Get medical attention.
	Avoid contact with eyes. Wear safety goggles.	Flush eyes promptly with water for 15 minutes minimum. Get medical attention.
	Avoid swallowing. Can cause severe nausea, vomiting, abdominal pain, bleeding and central nervous system damage.	Never give anything by mouth to an unconscious person. If victim is not alert, give black coffee and active charcoal. If victim is alert, induce vomiting. Get medical attention.

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WARNING

DANGEROUS CHEMICALS
Continued

Item (NSN / APN)	Care and Handling Procedures	Corrective Actions
Methanol OM232, grade A	Flammable Avoid heat, sparks, an open flame.	Use CO_2 dry chemical or "alcohol type" foam extinguisher.
	Vapors can cause headache, dizziness, weakness, gastrointestinal or visual disturbance.	Remove victim to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Keep victim warm and cover eyes to exclude light. Get medical attention.
	Avoid contact with skin. Wear rubber gloves.	Remove soaked clothing promptly. Wash skin thoroughly with large amounts of water for 15 minutes minimum. Get medical attention.
	Avoid contact with-eyes. Wear safety goggles.	Flush eyes promptly with large amounts of water for 15 minutes minimum.
	Avoid swallowing. Can cause drowsiness, visual disturbances, possible blindness.	If conscious, give victim large amounts of soapy water and induce. vomiting. Get medical attention.
Isopropyl alcohol, technical TT 1735 grade 3	Flammable. Avoid heat, sparks, and open flame. Fumes may spread long distances and flash back.	Use CO_2, dry chemical or "alcohol type" foam extinguisher.
	Vapors can cause irritation of nose and throat.	Remove victim to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
	Avoid prolonged or repeated contact with skin. Wear protective gloves.	Remove soaked clothing promptly. Wash skin thoroughly with soap and water for 5 minutes minimum. Get medical attention.
	Avoid contact with eyes. Can cause corneal burns and eye damage. Wear safety goggles .	Flush eyes promptly with water for 15 minutes minimum. Get medical attention.
	Avoid swallowing. Can cause depression, dizziness, headache, vomiting, and unconsciousness. Can cause death.	Get immediate medical attention.

WARNING

DANGEROUS CHEMICALS
Continued

Item (NSN/APN)	Care and Handling Procedures	Corrective Actions
Insulation varnish MIL-V-173	Flammable. Avoid heat, sparks, and open flame.	Use CO_2 or dry chemical extinguisher.
	Vapors can cause drowsiness, headache, dizziness and irritation of eyes, nose and throat. Use with adequate ventilation.	Remove victim to fresh air. If not breathing, perform artificial respiration. Get medical attention.
	Avoid prolonged or repeated contact with skin. Wear rubber gloves.	Wash skin promptly and thoroughly with mild soap and water. Apply skin cream.
	Avoid contact with eyes. Wear safety goggles.	Flush eyes promptly with water for 15 minutes minimum. Get medical attention.
	Avoid swallowing.	Do not induce vomiting. Get medical attention.
Polychlorinated biphenyls (PC: (contained in General Electr and Electrical Utilities capac tore located in the moto generator assembly)	Do not allow capacitors to become overheated. Replace any capacitors that show signs of swelling or leakage.	Remove victim to fresh air and give oxygen if short of breath. If not breathing, perform artificial respiration. Keep victim warm. Get medical attention.
	If material leaks or vaporizes, persons in the area should wear protective clothing (paper suits, gloves, disposable booties, organic respirators) when disposing of contaminants.	Remove all ignition sources. Ventilate the area. If solid material is present, sweep onto paper or other suitable material and burn in safe place. If in a liquid form, absorb on paper towels. Evaporate in a safe place, then burn. PCB material can also be disposed of in an approved hazardous waste location.
	Excessive inhalation can cause nausea, vomiting, loss of weight, liver damage and abdominal pain. When liver damage is severe, it can be fatal.	Remove victim to fresh air and give oxygen. Get medical attention.
	Avoid contact with skin. Wear protective gloves.	Remove contaminated clothing promptly. Blot excess with paper towels. Wash skin thoroughly with soap and water for 15 minutes minimum.
	Avoid contact with eyes. Do not wear contact lenses when working with this material. Wear safety goggles.	Flush eyes promptly with water for 15 minutes minimum. A drop of vegetable oil may be added to relieve irritation. Get medical attention.
	Avoid swallowing.	Get medical attention immediately.

WARNING

DANGEROUS CHEMICALS
Continued

Item (NSN/APN)	Care and Handling Procedures	Corrective Actions
Toluene OC 265	Flammable. Avoid heat, sparks, and open flame.	Use $C0_2$, dry chemical, "alcohol type" foam, watersprayorfogextinguisher.
	Vapors can cause dizziness, headache or unconsciousness.	Remove victim to fresh air.,If breathing is irregular or stopped, perform artificial respiration. Get medical attention.
	Avoid prolonged or repeated contact with skin. Wear protective gloves and clothing.	Remove soaked clothing. Wash skin promptly and thoroughly with mild soap and water.
	Avoid contact with eyes. Wear safety goggles.	Flush eyes promptly with clear water for 15 minutes minimum.
	Avoid swallowing.	Do not induce vomiting. Get medical attention.
Mineral spirits	Flammable. Avoid heat, sparks, and open flame.	Use CO2, dry chemical, "alcohol type, foam, water spray or fog extinguisher.
	Vapors can cause dizziness, headache or unconsciousness.	Remove victim to fresh air. If breathing is irregular or stopped, perform artificial respiration. Get medical attention.
	Avoid prolonged or repeated contact with skin. Wear protective gloves and clothing.	Remove soaked clothing. Wash skin promptly and thoroughly with mild soap and water.
	Avoid contact with eyes. Wear safety goggles.	Flush eyes promptly with clear water for 15 minutes minimum.
	Avoid swallowing.	Do not induce vomiting. Get medical attention.

WARNING

DANGEROUS CHEMICALS
Continued

Item (NSN/APN)	Care and Handling Procedures	Corrective Actions
Freon (Cleaning compound solvent) (Ethylene glycol freon cleanin solvent) '	Non-flammable. Use in small quan tities. Open flames, high tern peratures, alkali or alkaline eart metals may cause hazardous decom position with emission of hydro chloric and hydrofluoric acids whic: are possible carbonyl halides. Use in well-ventilated area. Vapor will concentrate in low areas. Exces sive inhalation may cause light headedness, shortness of breath, pos sible stupor, and at hig] concentrations can affect hear rhythm. Use an air mask at high con centrations. Avoid prolonged or repeated contac with skin. Wear protective gloves. Avoid contact with eyes. Wear safet goggles. Avoid swallowing.	Absorb spills with paper, ver- miculite, floor absorbent, or other absorbent material. Remove victim to fresh air. If not breathing, perform artificial respi- ration. If breathing is difficult, give oxygen. DO NOT give epinephrine or similar drugs, since such drugs may induce erratic heartbeat. Get medi- cal attention. Wash skin promptly and thoroughly with mild soap and water. Immediately flush eyes thoroughly with water. If conscious, give two glasses of wa- ter. Induce vomiting immediately. DO NOT induce vomiting in an un- conscious victim. Get medical atten- tion.
Dielectric coolant fluid 0545 type2	Avoid water contamination as mix ture can become flammable. Excessive high temperature may pro duce irritating vapors. Avoid prolonged or repeated contac with skin. Avoid contact with eyes. Wear safet. goggles.	Use $C0_2$ or dry chemical extin- guisher. Remove victim to fresh air. Wash promptly and thoroughly. Flush eyes promptly and thoroughly with water. Get medical attention.

WARNING

DANGEROUS CHEMICALS
Continued

Item (NSN/APN)	Care and Handling Procedures	Corrective Actions
Coolant (Union Carbide PM-8961)	Flammable. Avoid open flames and sparks. Avoid contact with skin. Wear rub- ber gloves. Avoid contact with eyes. Wear safety goggles. Avoid swallowing. Can cause dam- age to the central nervous system and severe kidney damage.	Use CO_2 or dry chemical extin- guisher. Wash skin promptly and thor- oughly with water. Flush eyes promptly and thor- oughly with water. Get medical attention immedi- ately.
Dielectric coolant fluid 0559 type	Avoid water contamination as mixture can become flammable. Excessive high temperature may produce irritating vapors. Avoid prolonged or repeated con- tact with skin. Avoid contact with eyes. Wear safety goggles.	Use C02 or dry chemical extin- guisher. Remove victim to fresh air. Wash skin promptly and'thor- oughly. Flush eyes promptly and thor- oughly with water. Get medical attention.
Naphtha TTN 97 TTY1GRA	Flammable. Avoid open flames and sparks. Use in well-ventilated area. Avoid contact with skin. Wear pro- tective clothing (rubber gloves, apron, and safety goggles). Avoid contact with eyes. Do not wear contact lenses when working with this material. Wear safety goggles. Avoid swallowing.	Use $C0_2$ or dry chemical extin- guisher. Remove victim to fresh air. If breathing has stopped, perform artificial respiration. Get medical attention. Wash skin promptly and thor- oughly with soap or mild detergent and water. If irritation persists after washing, get medical attention. Flush eyes promptly and thor- oughly with water. Get medical attention. Do not induce vomiting. Get medi- cal attention immediately.

Insert the latest changed pages in accordance with the instructions on the transmittal sheet.

LIST OF EFFECTIVE PAGES

NOTE: On a changed page, the portion of the text affected by the latest change is indicated by a vertical line in the outer margin of the page. Changes to illustrations are indicated by a letter suffix a9acent to the identification number, Added or completely revised chapters, sections, paragraphs, tables, etc., are indicated by a vertical line by the title.

Dates of issue for original and changed pages are:

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Change 2, 10 March 81
Change 3, 16 Nov. 81
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TECHNICAL MANUAL
NO. 9-1425-1525-12-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *29 June 1979*

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL
BATTERY FUNCTIONAL DIAGRAMS
HAWK AIR DEFENSE GUIDED MISSILE SYSTEM

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publication and Blank Forms) direct to: Commander, U.S. Army Missile Command, ATTN: AMSMI-LC-ME-PM, Redstone Arsenal, Alabama 35898-5238. A reply will be furnished to you.

TABLE OF CONTENTS

* [1]Refer to appendix B for serial number effectively.

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This technical manual (TM) is published for use by personnel responsible for maintaining the HAWK air defense guided missile system.

b. This TM forms part of a series of TMs on operation, assembly and emplacement, organizational maintenance, direct and general support, and depot maintenance of the HAWK air defense guided missile system.

c. This TM contains information relative to the operation and/or maintenance of the tracking adjunct system (TAS). However, only those units which have been specifically designated to receive TAS and have obtained appropriate TOE authorization may order, receive, or mount TAS BRU's.

d. The requirement for nomenclature distinction between "Basic and Improved" HAWK Systems and major items is no longer applicable. Action to delete this distinctive terminology will be taken as the respective pages of the manual are changed for other reasons.

e. The voltages shown on the system functional diagrams are characteristic of those obtained at the designated points. Actual voltages may vary because of test equipment and individual equipment operating conditions.

1-2. Forms, Records, and Reports

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS). The DA PAM is published in the Maintenance Management UPDATE. Units may subscribe to Maintenance Management UPDATE by submitting a completed DA Form 12-13.

1-3. Reporting Equipment Improvement Recommendations (EIR's)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to the address stated in DA PAM 738-750. We'll send you a reply.

Section II. EXPLANATION OF COVERAGE

1-4. Purpose

This manual provides a general knowledge of the functional operation of the HAWK system so that malfunctions can be isolated to a major item. Once a fault is traced to a major item, further isolation is accomplished by the use of the applicable major item functional theory and schematics manual or fault isolation manual.

a. Continuous-wave acquisition radar (CWAR)TM 9-1430-1528-12-2 and TM 9-1430-1528-12-4.

b. Guided missile battery control central (BCC)TM 9-1430-1526-12-2.

c. High-powered illuminator radar (HIPIR) AN/ MPQ-57-TM 9-1430-1533-12-2-1 and TM 91430-1533-12-2-2.

d. Deleted.

e. Launcher (LCHR) and launching section control box (LSCB)-TM 9-1440-531-12-2.

f. Pulse acquisition radar (PAR)-TM 9-1430-1534-12-2.

g. Information and coordination central (ICC)TM 9-1430-1535-12-2 and TM 9-1430-1535-12-3.

h. Range-only radar (ROR)-TM 9-1430-529-12-2.

i. Tracking adjunct system (TAS)-TM 91430-1536-13.

1-5. System Functional Diagrams

a. The system functional diagrams are arranged in a normal operating sequence to permit the maintenance technician to easily comprehend the functions of the HAWK system.

b. The test points shown on the diagrams represent the most accessible location for the measurement of the indicated signal. However, no test points are given in the LCHR because of safety considerations. All the test functions necessary to isolate the LCHR as a possible defective item are shown in the LSCB. Refer to TM 9-1440-531-12-2 to isolate malfunctions in the LCHR and to isolate those between the LCHR and missile.

c. The figure references adjacent to the test points and signal names on each diagram are keyed to the applicable major item functional theory manual listed in paragraph 1-4. The figures and zones given in the diagrams refer to the figures and zones of the test points.

d. System functional theory is provided on some diagrams. Since the two firing sections (FS A and FS B) are identical, the theory is provided for FS A only. The FS B theory is the same except
that FS B controls are used.

1-6. System Signals

Table 1-1 lists all signals passing between the major items of HAWK system, and also lists the functional diagrams on which the signal is shown.

1-7. Synchro Alignment Coverage

Chapter 7 contains functional diagrams of the integrated battery synchro system. Chapter 8 provides alignment procedures for the synchros contained in each major item.

1-8. Difference Among Models

a. Any differences among models that exist in this equipment are indicated in text and on diagrams by the use of the serial number effectivity code. This code is given in appendix B.

b. Whenever possible, all configurations of equipment are shown on the diagrams in chapter 3. When the differences among models are extensive, the latest configuration is shown in chapter 3, and the earlier configuration in appendix B. The earlier configuration carries the same figure number as the configuration that supersedes it.

Table 1-1. System Signal Cross Reference

Signal name	System functional design	Figure no	Sheet no.
Acquisition Synchro bus R1, R2	PAR and CWAR antenna control	3-6	1, 2, 3
ADP clock	Tactical status	3-34	3, 4
ADP failure	IFF, ADP, CWAR failure and display test	3-35	1, 2
ADP fire A	Fire command	3-29	1
ADP fire B	Fire command	3-29	1, 13
ADP mode	HIPIR auto antenna search	3-15	9
ADP XMIT serial data	Tactical status	3-34	3, 4
AFC hold enable	HIPIR manual speed tracking, special lock and	3-20	3
AFC hold			
Alert	LCHR energizing, control and missile present	3-4	1, 2
Angular velocity, azimuth	HIPIR lock and target information	3-16	3, 5, 6, 7
Angular velocity, elevation	HIPIR lock and target information	3-10	1, 2
ASI display select	CWAR trigger and commutated video	3-10	1, 2
Auto acquisition enable FSA	TAS interface	3-19.1	3
Auto acquisition enable FSB	TAS interface	3-19.1	7
Auto assign hold, FSA	HIPIR auto antenna search	3-15	1
Auto assign hold, FSB	HIPIR auto antenna search	3-15	7
Auto breaklock FSA, and FSB	Change targets and breaklock	3-17	1
Auto designate, FSA	HIPIR auto antenna search	3-15	3, 9

Table 1-1. System Signal Cross Reference-Continued

Signal name	System functional diagram	Figure no	Sheet no.
Auto designate, FSB	HIPIR auto antenna search	3-15	9, 10
Auto fire mode	ADP fire mode and request engagement	3-14	2
Auto IFF challenge	Target identification	3-13	1, 2
Autopilot command, FSA and FSB	Missile message and autopilot commands	3-31	1, 3, 4, 5
Azimuth boresight trim FSA *(W)l	TAS interface	3-19.1	3
Azimuth boresight trim FSB *(W)l	TAS interface	3-19.1	7
Azimuth command S1, S2, S3	HIPIR auto antenna search	3-15	4, 9
	Manual HIPIR antenna control	3-18	1, 2
	Fire command	3-29	10, 11, 15
Azimuth de error	ROR azimuth positioning	3-25	1, 2
Azimuth de position error	ROR azimuth positioning	3-25	1
Azimuth lead angle, FSA	Fire command	3-29	7, 8
Azimuth lead angle, FSB	Fire command	3-29	7, 8, 15
Azimuth preferential illumination FSA *(W)[1]	TAS interface	3-19.1	3
Azimuth preferential illumination FSB *(W)[1]	TAS interface	3-19.1	7
Azimuth repeatback S1, S2, S3	PAR and CWAR antenna control	3-6	3, 4, 5
Azimuth repeatback S1, S2, S3, FSA and FSB	HIPIR auto antenna search	3-15	7
	Manual HIPIR antenna control	3-18	3
Azimuth stick position error FSA *(W)[1]	TAS interface	3-19.1	3
Azimuth stick position error FSB *(W)[1]	TAS interface	3-19.1	7
Azimuth stick position error return FSA *(W)[1]	TAS interface	3-19.1	3
Azimuth stick position error return FSB *(W)[1]	TAS interface	3-19.1	7
BATT/SSLO heater ϕ2	LCHR energizing, control and missile present	3-4	2
BB/DF (normal RCVR) list #2 video select control	PAR video, video control and signal strength	3-12	3
Breaklock A and B	Change targets and breaklock	3-17	2
Cable run identification (28 Vdc)	Cable identification at the BCC	4-1	
Cable run identification (common)	Cable identification at the BCC	4-1	
	Cable identification at the radars	4-2	
	Cable identification at the ICC	4-3	
Cable run identification (HIPIR A common)	Cable identification at the BCC	4-1	
	Cable identification at the radars	4-2	
Cable identification at the LSCB	4-4		
Caged FSA *(W)[1]	TAS interface	3-19.1	3
Caged FSB *(W)[1]	TAS interface	3-19.1	7
CCM override	HIPIR manual speed tracking, special lock and AFC hold	3-20	2, 3
Commo L1, L2	Telephone communications	3-40	9, 10
Common/lead angle	Fire command	3-29	13, 14
Computer mode enable	Target identification	3-13	3, 4
CWAR commo L1, L2	Telephone communications	3-40	7, 11
CWAR digital word and clock	CWAR PSI video, digital word and clock	3-8	1
CWAR doppler tone	CWAR doppler tone	3-9	
Data present	ROR mode control	3-21	6
	Manual range during jamming	3-24	4
Data present	ADP fire mode and request engagement	3-14	2, 3
Data present, FSA and FSB	ADP fire mode and request engagement	3-14	2, 3
DBB am	ROR magnetron tuning and DBB	3-23	
DC common	PAR frequency control	3-11	1
DC error	ROR elevation positioning	3-26	
Delay lock	HIPIR lock and target information	3-16	1, 6
Delay lock plus memory	HIPIR Lock and target information	3-16	3, 7
Delay lock through memory	Fire command	3-29	3, 4, 14
Delayed radar trigger	Target identification	3-13	1, 12
Designation azimuth S1, S2, S3, FSA	HIPIR auto antenna search	3-15	1
Designation azimuth S1, S2, S3, FSB	HIPIR auto antenna search	3-15	7
Designation elevation lo/med, FSA	HIPIR auto antenna search	3-15	1
Designation elevation lo/med, FSB	HIPIR auto antenna search	3-15	8
Designation elevation med/hi, FSA	HIPIR auto antenna search	3-15	1
Designation elevation med/hi, FSB	HIPIR auto antenna search	3-15	8

Table 1-1. System Signal Cross Reference-Continued

Signal name	System functional diagram	Figure no.	Sheet no.
Designation range, FSA	HIPIR auto antenna search	3-15	1
Designation range, FSB	HIPIR auto antenna search	3-15	7
DFF/DF	PAR video, video control and signal strength	3-12	3
Doppler and am	HIPIR lock and target information	3-16	4.2, 6
Dud	Dud and failed to fire	3-32	1, 2
Elevation boresight trim FSA *(W)[1]	TAS interface	3-19.1	3
Elevation boresight trim FSB *(W)[1]	TAS interface	3-19.1	7
Elevation command S1, S2, S3	HIPIR auto antenna search	3-15	9
	HIPIR manual antenna control	3-18	1, 2
	ROR elevation positioning	3-26	
	Fire command	3-29	10, 11, 15
Elevation designation low/med, FSA and FSB	Auto range during jamming	3-27	1
Elevation lead angle	Fire command	3-29	7, 8
Elevation position dc error	ROR elevation positioning	3-26	
Elevation preferential illumination FSA *(W)[1]	TAS interface	3-19.1	3
Elevation preferential illumination FSB *(W)[1]	TAS interface	3-19.1	7
Elevation repeatback, FSA and FSB	HIPIR auto antenna search	3-15	6
Elevation stick position error FSA *(W)[1]	TAS interface	3-19.1	3
Elevation stick position error FSB *(W)[1]	TAS interface	3-19.1	7
Elevation stick position error return FSA *(W)[1]	TAS interface	3-19.1	3
Elevation stick position error return FSB *(W)[1]	TAS interface	3-19.1	7
Engage 1st target, FSA and FSB	ADP fire mode and request engagement	3-14	3
Engage 2nd target, FSA and FSB	ADP fire mode and request engagement	3-14	3
Failed to fire	Dud and failed to fire	3-32	1
FCA range rate	ROR mode control	3-21	2, 4
FCA range signal	ROR mode control	3-21	2, 4
FCA receive only	ROR mode control	3-21	1, 2
FCA release	ROR mode control	3-21	1, 2
FCA terminate command	ROR mode control	3-21	1, 2
FCB range rate	ROR mode control	3-21	3, 4
FCB range signal	ROR mode control	3-21	3, 4
FCB receive only	ROR mode control	3-21	1, 3
FCB release	ROR mode control	3-21	1, 3
FCB terminate command	ROR mode control	3-21	1, 3
Fire command no. 1, no. 2, no. 3	Fire command	3-29	3, 4, 13, 14
Fire section A commo L1. L2	Telephone communications	3-40	8, 9
Fire section B commo L1. L2	Telephone communications	3-40	8, 9
Fire section available, FSA and FSB	ADP fire mode and request engagement	3-14	2
Fire section synchro bus, R1 and R2	HIPIR auto antenna search	3-15	10
Forced silent FSA *(W)[1]	TAS interface	3-19.1	3
Forced silent FSB *(W)[1]	TAS interface	3-19.1	7
Frequency command	Frequency command	3-30	1, 2,3
Frequency command test OK	Missile message and frequency command test	3-38	3
GYRO/battery heater ϕ3	LCHR energizing, control, and missile present	3-4	2
Gyro heater control, 1 and 2	LCHR energizing, control, and missile present	3-4	2
Gyro heater ϕ1	LCHR energizing, control, and missile present	3-4	2
High altitude search command	HIPIR manual antenna search	3-19	2
HIPIR manual range, FSA and FSB	Manual range during jamming	3-24	3, 4
HIPIR radiating, FSA and FSB *(T)[1]	HIPIR energizing and control	3-3	1, 2, 3
HIPIR range S1, S2, S3, FSA	HIPIR lock and target information	3-16	1, 3
HIPIR range S1, S2 S3, FSB	HIPIR lock and target information	3-16	6, 7
HIPIR test, A and B	HIPIR test	3-37	1, 2
HIPIR test OK	HIPIR test	3-37	2, 3
HIPIR 28 vac	LCHR energizing, control, and missile present	3-4	1, 2
Hot receive	Radio communications	3-41	1, 2
Hot sec mode	Radio communications	3-41	1, 2
IFF auto challenge off	Target identification	3-13	3, 4
IFF challenge	Target identification	3-13	3, 4
IFF display video	Target identification	3-13	1, 2
	IFF, ADP, CWAR failure, and display test	3-35	1, 2

[1] **Refer to appendix B for serial number effectivity.**

Table 1-1. System Signal Cross Reference-Continued

Signal name	System functional diagram	Figure no.	Sheet no.
IFF failure	Target identification	3-13	2
IFF pedestal commo L1, L2	Telephone communications	3-40	7, 11
IFF signal return	Ground distribution system	4-6	1
IFF sync	Target identification	3-13	3, 4
Illuminator A special lock	HIPIR manual speed tracking, special lock and AFC hold	3-20	5
	ROR mode control	3-21	2, 5
Illuminator B special lock	HIPIR manual speed tracking, special lock, and AFC hold	3-20	3
	ROR mode control	3-21	3, 5
In range, FSA and FSB	Target in range	3-28	1
Intra battery commo	Telephone communications	3-40	8, 11
IRR receive	Radio Communications	3-41	1, 2
IRR sec mode	Radio Communications	3-41	1, 2
Jamming level (intensity blanker)	PAR video, video control, and signal strength	3-12	4
Lamp and switch status serial data	Tactical status	3-34	6
Launcher ready	LCHR energizing, control, and missile present	3-4	1
Launcher standby	HIPIR energizing and control *(R)1	3-3	1
	LCHR energizing, control, and missile present	3-4	1, 2
LCHR commo L1, L2	Telephone communications	3-40	10
Lead angle command	Fire command	3-29	5, 7, 14, 15
Lead angle, FSA	Fire command	3-29	12
Lead angle, FSB	Fire command	3-29	16
Lead angle test	Fire command	3-29	10, 12
Lock through memory	Fire command	3-29	4, 14
Low altitude search command	HIPIR manual antenna search	3-19	2
Manual A command	ROR mode control	3-21	1, 2
Manual A indication	ROR mode control	3-21	1, 3
Manual B command	ROR mode control	3-21	1, 3
Manual B indication	ROR mode control	3-21	1, 2
Manual radiate, FSA and FSB *(T)[1]	HIPIR energizing and control	3-3	1, 3
Manual speed	HIPIR manual speed tracking, special lock, and AFC hold	3-20	2, 3
Manual track FSA *(W)[1]	TAS interface	3-19.1	6
Manual track FSB *(W)[1]	TAS interface	3-19.1	7
Memory	HIPIR lock and target information	3-16	6
Memory indication	HIPIR lock and target information	3-16	1
Missile count no. 1, no. 2, no. 3	LCHR energizing, control, and missile present	3-4	4, 5
Missile destroy	Missile destroy	3-33	3
Missile fired, FSA	Fire command	3-29	12
Missile fired, FSB	Fire command	3-29	16
Missile message A, B, C, FSA and FSB	Missile message and autopilot commands	3-31	1, 2
Missile message and time constant switching A*(R)1, B, C, FSA and FSB	Missile message and autopilot commands	3-31	3
Missile message command A, B, C	Missile message and autopilot commands	3-31	3, 4, 5
Missile message test OK	Missile message and frequency command test	3-38	3
Missile present	LCHR energizing, control and missile present	3-4	3
Missile 1A, 1B, 1C ready	LCHR energizing, control and missile present	3-4	3, 4
Mode 1, mode 2, mode 3A remote enable	Target identification	3-13	3, 4
MTI bit #1 video select control	PAR video, video control, and signal strength	3-12	3
ON internal power	LCHR energizing, control, and missile present	3-4	3
Optical lock-on FSA *(W)[1]	TAS interface	3-19.1	6
Optical lock-on FSB *(W)[1]	TAS interface	3-19.1	7
PAR commo L1, L2	Telephone communications	3-40	11
PAR radiate ready light	PAR energizing and control	3-2	
PAR tachometer, G1 and G2	PAR and CWAR antenna control	3-6	2, 3
Radar slaved FSA *(W)[1]	TAS interface	3-19.1	3
Radar slaved FSB *(W)[1]	TAS interface	3-19.1	7
Radar slaved select FSA *(W)[1]	TAS interface	3-19.1	3
Radar slaved select FSB *(W)[1]	TAS interface	3-19.1	7
Range designation, FSA and FSB	Auto range during jamming	3-27	1, 2

[1]Refer to appendix B for serial number effectivity.

Table 1-1. System Signal Cross Reference-Continued

Signal name	System functional diagram	Figure no.	Sheet no.
Range rate enable	ROR mode control	3-21	2, 4
Range rate designate speed	HIPIR manual speed tracking special lock, and AFC hold	3-20	2, 3
Range rate designation, FSA	HIPIR auto antenna search	3-15	1, 3
Range rate designation, FSB	HIPIR auto antenna search	3-15	7, 8
Range signal, FSA	HIPIR auto antenna search	3-15	3
Range signal, FSB	HIPIR auto antenna search	3-15	9
Receive mode	PAR video, video control, and signal strength	3-12	3
Receive only A indication	ROR mode control	3-21	1, 3
Receive only B indication	ROR mode control	3-21	1, 2
Reconstituted doppler	HIPIR lock and target information	3-16	3, 4.2, 6, 7
Refuse, A and B	ADP fire mode and request engagement	3-14	3
Release A indication	ROR mode control	3-21	1, 2
Release B indication	ROR mode control	3-21	1, 3
Remote activate enable	ROR energizing and control	3-5	
Remote challenge indicator enable	Target identification	3-13	1, 2
Remote radiate activate	CWAR energizing and control	3-1	1, 2
	PAR energizing and control	3-2	
	HIPIR energizing and control	3-3	1, 2
Remote radiate hold	CWAR energizing and control	3-1	1, 2
	PAR energizing and control	3-2	
	HIPIR energizing and control	3-3	1, 2
Remote standby activate	CWAR energizing and control	3-1	1, 2
	PAR energizing and control	3-2	
	HIPIR energizing and control	3-3	1, 2
Remote standby hold	CWAR energizing and control	3-1	1, 2
	PAR energizing and control	3-2	
	HIPIR energizing and control	3-3	1, 2
Request engage 1st target, FSA and FSB	ADP fire mode and request engagement	3-14	2, 3
Request engage 2nd target, FSA and FSB	ADP fire mode and request engagement	3-14	2, 3
Ring Commo	Radio Communications	3-41	4
ROR activate	ROR energizing and control	3-5	
ROR auto call, FSA and FSB	Auto range during jamming	3-27	1
ROR commo L1, L2	Telephone communications	3-40	11
ROR overtemp light	ROR energizing and control	3-5	
ROR radiate light	ROR energizing and control	3-5	
ROR system trigger	ROR sweep and video	3-22	
ROR video	ROR sweep and video	3-22	
Rotate command	PAR and CWAR antenna control	3-6	1, 2, 3
Scan mode control gate	CWAR scan mode control	3-7	1
Search indication, A and B	HIPIR auto antenna search	3-15	10
	HIPIR manual antenna search	3-19	3
Sector enable	PAR video, video control and signal strength	3-12	1
Sector of interest	PAR video, video control and signal strength	3-12	1
Selected azimuth	ROR azimuth positioning	3-25	1, 2
Serial interface clock	Tactical status	3-34	3
SIF replies	Target identification	3-13	3, 4
Signal ground	Ground distribution system	4-6	2
Signal return, CWAR	Ground distribution system	4-6	1
Signal strength	HIPIR lock and target information	3-16	1, 4.2, 6
Slant range	ROR azimuth positioning	3-25	1, 2
	S.L.B. PAR video, video control and signal strength	3-12	3
Special lock	HIPIR manual speed tracking, special lock, and AFC hold	3-20	5
Speed designation, FSA	HIPIR auto antenna search	3-15	1
Speed designation, FSB	HIPIR auto antenna search	3-15	7
SSLO heater control, 1 and 2	LCHR energizing, control, and missile present	3-4	2
SSLO heater ϕ1	LCHR energizing, control, and missile present	3-4	2
Stabilotron frequency meter	PAR frequency control	3-11	1, 2
Tactical status serial data	Tactical status	3-34	3
Target in range	Target in range	3-28	1
Target report	PAR video, video control, and signal strength	3-12	4, 5
Target speed	HIPIR lock and target information	3-16	1, 6

Table 1-1. System Signal Cross Reference Continued

Signal name	System functional diagram	Figure no	Sheet no.
TAS BITE fail FSA *(W)[1]	TAS interface	3-19.1	6
TAS BITE fail FSB *(W)[1]	TAS interface	3-19.1	7
TAS operate FSA *(W)[1]	TAS interface	3-19.1	3
TAS operate FSB *(W)[1]	TAS interface	3-19.1	7
TAS power on FSA *(W)[1]	TAS interface	3-19.1	3
TAS power on FSB *(W)[1]	TAS interface	3-19.1	7
Terminate signal, A and B	Change targets and breaklock	3-17	2
Test command	Missile message and frequency command test	3-38	1
Test failure, CWAR	IFF, ADP, CWAR, failure and display test	3-35	1
Test mode indication	PAR test mode indication	3-36	
Test target command, MTI-MTI/DF	PAR video, video control, and signal strength	3-12	3
Track control FSA *(W)[1]	TAS interface	3-19.1	3
Track control FSB *(W)[1]	TAS interface	3-19.1	7
Track on B	ROR azimuth positioning	3-25	1
Transmitter frequency 2 sec delay	PAR frequency control	3-11	1, 2
Transmitter frequency, increase and decrease	PAR frequency control	3-11	1, 2
Trigger and commutated video	CWAR trigger and commutated video	3-10	1, 2
Trigger and gated video	PAR video, video control, and signal strength	3-12	4
True bearing	PAR and CWAR antenna control	3-6	2, 3
Tuning indication	ROR magnetron tuning and DBB	3-23	
Video and trigger	HIPIR lock and target information	3-16	4.2, 6
Video high FSA *(W)[1]	TAS interface	3-19.1	6
Video high FSB *(W)[1]	TAS interface	3-19.1	7
Video integrator, sector IND relay	PAR video, video control, and signal strength	3-12	3
Video low FSA *(W)[1]	TAS interface	3-19.1	6
Video low FSB *(W)[1]	TAS interface	3-19.1	7
WFOV select FSA *(W)[1]	TAS interface	3-19.1	3
WFOV select FSB *(W)[1]	TAS interface	3-19.1	7
12 Vdc (TAS) FSA *(W)[1]	TAS interface	3-19.1	6
12 Vdc (TAS) FSB *(W)[1]	TAS interface	3-19.1	7
- 12 Vdc (TAS) FSA *(W)[1]	TAS interface	3-19.1	6
- 12 Vdc (TAS) FSB *(W)[1]	TAS interface	3-19.1	7
± 12 Vdc RETURN (TAS) FSA *(W)[1]	TAS interface	3-19.1	6
± 12 Vdc RETURN (TAS) FSB*(W)[1]	TAS interface	3-19.1	7
28 Vdc return (TAS) FSA *(W)[1]	TAS interface	3-19.1	3
28 Vdc return (TAS) FSB *(W)[1]	TAS interface	3-19.1	7
28 Vdc	Cable identification at the BCC	4-1	
	Cable identification at the ICC	4-3	
	Cable identification at the radars	4-1	
	Cable identification at the LSCB	4-3	
28 Vdc return	Cable identification at the BCC	4-6	2
	Cable identification at the ICC	4-2	
25 Vdc return	Ground distribution system	4-4	
28 Vdc standby no. 2	LCHR energizing, control, and missile present	3-4	2, 3, 9
28 Vdc return	Cable identification at the radars	4-2	
	Cable identification at the LSCB	4-4	
28 Vdc return (R)	Ground distribution system	4-6	1, 2
100 Vdc (B)	PAR frequency control	3-11	1
- 100 Vdc	PAR frequency control	3-11	1
208 Vac, 30, 400 Hz	LCHR energizing, control, and missile present	3-4	2
400 Hz excitation	ROR azimuth positioning	3-25	1, 2
416 Vac, 30, 400 Hz	416 Vac power distribution	4-5	

[1]Refer to appendix B for serial number effectivity.

CHAPTER 2
FAULT ISOLATION PROCEDURES

Section I. INTRODUCTION

2-1. General

The system fault isolation procedures and functional diagrams are troubleshooting aids for isolating malfunctions that occur during system operation or checkout. These procedures are designed to isolate system malfunctions to local equipment faults, remote output circuits of the major end item (to include cabling), or associated BCC circuitry.

2-2. Index to Indicators

Table 2-1 contains a listing of all BCC indicators for use in system troubleshooting, and references the applicable figure and table for each. Only the indicators dependent upon signals external to the BCC are listed.

2-3. Procedures

The fault isolation procedures (tables 2-2 through 2-63) are specified troubleshooting steps for isolating system faults. The checks are random entry and do not require starting with the first table and proceeding in sequence until a malfunction is obtained. Checks on major item local equipment circuits are presented first, followed by remote circuits checks pertinent to that item. If a specified local check indicates a faulty major item, the procedures will reference the user to local fault isolation procedures for the item of equipment. If all local checks on the end item of equipment are good, the procedures will identify the faulty remote output circuitry by reference to the fault isolation functional diagram. The fault isolation procedures are presented in two columns of information: check and circuit identification points.

a. Check. This column contains steps to perform in isolating system malfunctions, and lists indications that should result from performance of the checks.

b. Circuit Identification Points. This column identifies the circuit points within the system fault isolation diagram associated with a particular indication. When appropriate, references to major item fault isolation procedures are made in this column. An asterisk indicates that the point is accessible during troubleshooting.

2-4. Functional Diagrams

The diagrams are arranged to show the relationship between BCC system indicators and circuits within the major items of equipment. Cabling between the BCC and the major items of equipment is also shown. The diagrams show, in functional detail, the circuitry within the equipment that cannot be checked when in the local mode of operation. Equipment circuitry that is checked in the local mode is identified by blocks giving the appropriate circuit name and figure references to the functional diagrams in the major item functional theory and schematic manuals listed in paragraph 1-4. Schematic identification may be accomplished by using the table of contents, index to indicators, and index of signal names.

2-5. Fault Isolation

WARNING

115 Vac may be present in the HIPIR data cables. Use extreme caution when connecting or disconnecting a data cable.

CAUTION

Before any HIPIR data cable is disconnected for test purposes, ensure that the protective cover for the cable plug is connected to the protective cover for the cable entry panel receptacle. This prevents the HIPIR data cable from being reconnected to the wrong receptacle. If a protective cover is missing, before reconnecting the HIPIR data cable upon direction of the FCO or maintenance warrant officer, perform the HIPIR recabling procedure in TM 9-1430-1533--12-1.

a. Locate the faulty signal in table 2-1.

Table 2-1. Index to Indicators (Mobile Battery)

BCC system indicators	Figure no.	Table no
ADCP POINTER CLEAR indicator-switch (tracking lever designate panel)	3-34	2-62
ADCP POINTER INITIATE indicator-switch (tracking lever designate panel)	3-34	2-62
ADP FAIL lamp (TCC)	3-35	2-55
AFC HOLD pushbutton (FC)	3-20	2-38
ARM lamp (miniature missile simulator)	3-29	2-51
ASI scope		
ASI video	3-10	2-13
PSI video	3-8	2-10
ASSIGNED label (battery status indicator)	3-15	2-21
AUTO ACQ OFF (TAS)	3-19.1	2-35.1
AUTO ACQ ON (TAS)	3-19.1	2-35.1
AUTO ASSIGN label (TCC)	3-15	2-21
AUTO FIRE label (TCC)	3-14	2-19
AUTO FIRE lamp (monitor panel)	3-29	2-50
AUTO HOLD lamp (monitor panel)	3-15	2-21
AUTO label (FC)	3-15	2-21
AUTO PILOT lamp (monitor panel)	3-31	2-53
AUTO RANGE pushbutton (FC)	3-24	2-45
AUTO SPEED pushbutton (FC)	3-20	2-36
BREAK LOCK pushbutton (FC)	3-17	2-31
Battery priority pushbutton (TCC)	3-14	2-20
CCM OVERRIDE lamp (FC)	3-20	2-37
CW lamp (CWTDC)	3-6	2-8
CW RADAR RADIATE pushbutton (CWTDC)	3-1	2-2
CW RADAR STANDBY pushbutton (CWTDC)	3-1	2-2
CHALLENGE indicator-switch (TCC)	3-13	2-18
CHANGE TARGETS label (TCC and FC)	3-17	2-31
COAST label (FC)	3-16	2-25
Communication (fire section)	3-40	2-59
Communication (CWAR)	3-40	2-59
Communication (PAR)	3-40	2-59
Communication (ROR)	3-40	2-59
DESTROY pushbutton (FC)	3-33	2-54
Doppler headset (CWTDC)	3-9	2-12
Doppler headset (FC)	3-40	2-59
ELEVATION HIGH pushbutton (FC)	3-19	2-35
ELEVATION LOW pushbutton (FC)	3-19	2-35
ELEVATION MANUAL lamp (FC)	3-18	2-33
EMCON (TAS)	3-19.1	2-61
FAIL (TAS)	3-19.1	2-35.1
FAIL TO FIRE lamps (LSCB)	3-32	2-51
FC scope		
Azimuth repeatback mark	3-18	2-32
PAR video	3-12	2-16
PSI video	3-8	2-10
Range repeatback mark	3-16	2-23
Range repeatback mark (jamming)	3-24	2-45
FIRE (F) pushbutton (FC)	3-29	2-50
FIRE SECTION ACTIVE pushbutton (FC)	3-3	2-4
FIRE SECTION OFF pushbutton (FC)	3-3	2-4
FIRE SECTION STBY pushbutton (FC)	3-3	2-4
FORCED SILENT (TAS)	3-19.1	2-61
GYRO RUNUP lamp (miniature missile simulator)	3-29	2-51
HANGFIRE lamp (FC)	3-32	2-51

Table 2-1. Index to Indicators (Mobile Battery)-Continued

BCC system indicators	Figure no.	Table no.
HIPIR test pushbutton (FC)	3-37	2-58
ICWAR FAIL lamp (TCC)	3-35	2-55
CWAR fault lamps (ADP)	3-6	2-8
IFF AUTO CHALLENGE OFF indicator-switch (TCC)	3-13	2-18
IFF FAIL lamp (TCC)	3-35	2-55
ILLUM FAIL label (FC)	3-37	2-58
INDEP (TAS)	3-19.1	2-35.1
IN RANGE label (battery status indicator)	3-28	2-49
INITIATE lamp (miniature missile simulator)	3-29	2-51
JAMMED label (battery status indicator)	3-21	2-39
JAMMING label (FC)	3-21	2-39
KILL pushbutton (FC)	3-17	2-31
LEAD ANGLE lamp (monitor panel)	3-29	2-51
LOCK label (battery status indicator)	3-16	2-24
LOCK lamp (FC)	3-16	2-24
MAIN POWER lamp (LCU)	3-4	2-5
MANUAL RANGE pushbutton (FC)	3-24	2-45
MANUAL SPEED pushbutton (FC)	3-20	2-36
MISSILE COUNT indicator (status indicator)	3-4	2-6
MISSILE MESSAGE A lamp (monitor panel)	3-31	2-53
MISSILE MESSAGE B lamp (monitor panel)	3-31	2-53
MISSILE MESSAGE C lamp (monitor panel)	3-31	2-53
Missile present lamps (FC)	3-4	2-6
Missile READY lamps (ILSCB)	3-4	2-6
MTI indicator-switch (TCC)	3-12	2-16
MTI BB/DF indicator-switch (TCC)	3-12	2-16
MSL FIRED lamp (monitor panel)	3-29	2-50
NO KILL pushbutton (FC)	3-17	2-31
OSVA priority pushbutton (TCC)	3-14	2-20
OUTPUT TEST lamp (HIPIR)	3-30	2-52
RADIATE lamp (ROR electronic control amplifier)	3-5	2-7
RADIATE lamp (CWAR)	3-1	2-2
RADIATE lamp (PAR)	3-2	2-3
READY TO RADIATE lamp (PAR)	3-2	2-3
RELEASE pushbutton (FC) extinguishes when:		
BREAK LOCK pushbutton is pressed	3-21	2-39
KILL pushbutton is pressed	3-21	2-39
NO KILL pushbutton is pressed	3-21	2-39
RANGE rate handwheel is released	3-21	2-39
RELEASE pushbutton is pressed	3-21	2-39
RELEASE pushbutton (FC) lights when:		
CALL pushbutton is pressed	3-21	2-39
RECEIVE ONLY pushbutton is pressed	3-21	2-39
ROR scope (sweep and video) (FC)	3-22	2-42
ROR magnetron frequency meter (FC)	3-23	2-44
Search functions (HIPIR)	3-15	2-21
SEARCH label (FC)	3-15	2-21
Searching lamp (FC)	3-15	2-21
SIF REPLIES CODED label (TCC)	3-13	2-18
SIGNAL STRENGTH meter (FC)	3-12	2-17
SLAVED (TAS)	3-19.1	2-35.1

Table 2-1. Index to Indicators (Mobile Battery)-Continued

BCC system indicators	Figure no	Table no
STANDBY lamp (CWAR)	3-1	2-2
STANDBY pushbutton (HIPIR)	3-3	2-4
STANDBY pushbutton (PAR set control)	3-2	2-3
TARGET SPEED meter (FC)	3-16	2-26
TAS display (TAS)	3-19.1	2-35.1
TCC scope		
HIPIR AZ repreatback mark	3-18	2-32
PAR video	3-12	2-16
PSI video	3-8	2-10
Range repeatback mark	3-16	2-23
Range repeatback mark (jamming)	3-24	2-45
TCC telephone control	3-40	2-59
Transmitter frequency (PAR)	3-11	2-14

b. Go to the referenced table and perform the checks, starting with step 1. If a particular step is referenced, start with that check. Perform checks in sequence until a bad indication is obtained.

c. Go to the circuit reference points column to the right of the faulty indicator for further instructions.

d. If reference is made to the local fault isolation procedures for an individual major item, use the manual for that item. If the major item checks out in local, use the reference points, and locate the faulty circuit in one of the system functional diagrams contained in chapter 3.

e. Perform signal and/or voltage checks along the identified signal path to isolate the fault.

f. Correct the fault, and check for normal system operation.

Section II. FAULT ISOLATION PROCEDURES

Table 2-2. CWAR Energizing (Fig. 3-1)

Check	Circuit identification points
1. BCC: power on. CW RADAR STANDBY pushbutton (CWTDC): press and hold. **CW RADAR STANDBY pushbutton (CWTDC): lights.**	BCC. *S1, zone A2. *S3-4, -2, zone B2. *CR2, zone C3.
2. CWAR: local. STANDBY pushbutton (CWAR) : press and release. **STANDBY lamp (CWAR): lit.**	Local CWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-4.
3. CWAR: remote. BCC: power on. CW RADAR STANDBY pushbutton (CWTDC): press and release. **CW RADAR STANDBY pushbutton (CWTDC): lit.**	BCC. J1-22, zone C4. *TB12-20, zone C5. J7-S, zone C5. J1-19, zone D4. *TB13-1, zone D5. J7-R, zone D5. CWAR. J2-S, zone C9. *S4D-10, zone C11. *S4B-4, zone C11. J2-R, zone D9. *K1-2, zone C10.

Table 2-2. CWAR Energizing (Fig. 3-1) -Continued

Check	Circuit identification points
4. BCC: power on CW RADAR RADIATE pushbutton (CWTDC): press and hold **CW RADAR STANDBY pushbutton (CWTDC): lit**	BCC. *S3-3, zone A2. *S2-2, zone B3. *CR4, zone B3.
5. CWAR: local standby RADIATE pushbutton (CWAR): press and release **RADIATE lamp (CWAR): lit**	Local CWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-4.
6. BCC: power on CWAR: remote standby CW RADAR RADIATE pushbutton (CWTDC): press and release **CW RADAR RADIATE pushbutton (CWTDC): lit**	BCC. J1-21, zone B4. *TB13-2, zone B5. J7-L, zone B5. J1-20, zone A4. *TB13-3, zone A5. J7-K, zone A5. CWAR. J2-L, zone B9. *S4C-7, zone B11. J2-K, zone A9. *K1-9, zone A10.

Table 2-3. PAR Energizing (Fig. 3-2)

Check	Circuit identification points
1. BCC: power on STANDBY pushbutton (PAR set control): press and hold **STANDBY pushbutton (PAR set control): lights**	BCC. S3, zone C1. S5-4, -2, zone B1. K 1-12, -2, zone D2.
2. PAR: local STANDBY pushbutton (PAR): press and release **STANDBY lamp (PAR): lit** **READY TO RADIATE lamp (PAR): lights in 4 to 6 minutes.**	Local PAR faults. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
3. PAR: remote BCC: power on STANDBY pushbutton (PAR set control): press and release **STANDBY pushbutton (PAR set control): lit**	BCC. J2-7, zone C3. *TB11-5, zone C3. J5-R, zone C4. J2-6, zone C3. *TB11-4, zone C3. JS-P, zone C4. PAR. J2-R, zone C4. S1-1D, zone C6. S1-1C, zone C6. J2-P, zone C4. S1-1, zone C5.

Table 2-3. PAR Energizing (Fig. 3-2)-Continued

Check	Circuit identification points
3-Continued. **READY TO RADIATE lamp (PAR set control): illuminates in 4 to 6 minutes.**	PAR. J2-w, zone D4. BCC. J5-w, zone D4. *TB11-8, zone D3. READY TO RADIATE lamp, zone D2.
4. BCC: power on. ON-OFF switch (BCC, PAR set control): held ON. RADIATE pushbutton (PAR set control): press and hold. **RADIATE pushbutton (PAR set control): illuminated.**	BCC. S5-3, zone B1. S4-2, zone B2. K1, zone D2. RADIATE lamp, zone D2.
5. PAR: local ready to radiate. RADIATE pushbutton (PAR): press and release. **RADIATE lamp (PAR): illuminated**.	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
6. BCC: power on. PAR: remote ready to radiate. RADIATE pushbutton (BCC, PAR set control): press and release. **RADIATE pushbutton (PAR set control): illuminated.**	BCC. J2-3, zone B3. *TB11-7, zone B3. J5-T, zone B4. J2-4, zone A3. *TB11-6, zone A3. J5-S, zone A4. PAR. J2-T, zone B4. P4-R, zone B5. S1-2A, zone B6. J2-S, zone A4. *TB1-173, zone A5. K5-5, zone A6. *TB1-172, zone B5.

Table 2-4. HIPIR Energizing (Fig. 3-3)

Check	Circuit identification points
1. BCC: power on. FIRE SECTION STBY pushbutton (BCC): press and hold. **FIRE SECTION STBY pushbutton (FC): illuminates**.	BCC. S6, zone B1. S7-4, zone B2. K5-1, zone B3. STBY lamp, zone A2.
2. HIPIR: local. STANDBY pushbutton (HIPIR): press and release. STANDBY lamp (HIPIR): illuminated.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2*(T)[1] or TM 9-1430-533-12-4*(R)[1].

1Refer to appendix B for serial number effectively.

Table 2-4. HIPIR Energizing (Fig. 3-3)-Continued

Check	Circuit identification points
3. BCC: power on. LOCAL/REMOTE switch (HIPIR): REMOTE. FIRE SECTION STBY pushbutton (FC): press and release. **FIRE SECTION STBY pushbutton (FC): illuminated**.	BCC. P1-30, zone B2. *TB2-18, zone B5. J2-q, zone A6. P1-28, zone B2. *TB2-19, zone B5. J2-P, zone B6. *TB1-2, zone A5. J1-s, zone A6. HIPIR. J3-q, zone A7. *TB1-4, zone All. S5B, zone B12. J3-W, zone B11. CR1, zone B9. S9-6, zone B9. J2-s, zone A7. *TB1-6, zone A8.
4. BCC: power on. HIPIR: remote standby. FIRE SECTION ACTIVE pushbutton (FC): press and hold. **FIRE SECTION ACTIVE pushbutton (FC): illuminated.**	BCC. S7-1, zone B1. S8-4, zone B2. K6-1, zone A3. ACTIVE lamp, zone A2.
5. HIPIR: local standby (radiate ready). RADIATE pushbutton (HIPIR): press and release. **RADIATE lamp (HIPIR): illuminated.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 *(T)' or TM 9-1430-533-12-4 *(R)1 .
6. BCC: power on. HIPIR: remote standby. FIRE SECTION ACTIVE pushbutton (FC): press and release. **FIRE SECTION ACTIVE pushbutton (FC): illuminated.**	BCC. P1-1, zone B2. *TB2-20, zone B5. J2-a, zone B6. P1-32, zone B2. *TB3-1, zone B5. J2-b, zone B6. HIPIR. J3-a, zone B7. *CR2, zone B9. S9-9, zone B9. J3-b, zone B7. K3-12, zone B8. S9-9, zone B9. K1, zone B10. *TB1-6, zone B11.

Table 2-5. LCHR Energizing and Control (Fig. 3-4)

Check	Circuit identification points
WARNING **If any missiles are present on the LCHRs, ensure that all umbilicals are disconnected and a shorting plug installed in each missile.**	
NOTE **All references to LCHRs, LSCBs, HIPIRs, and FCs apply to the fire section being checked.**	
1. LCHR: energize. HYD-PRESS switch (LCU) : on. **LCHR blower: operates.** **Hydraulic pump: operates.**	Local LCHR fault. Refer to fault isolation procedures in TM 9-1440-531-12-2.
WARNING **Ensure all LSCB LAUNCHERS 1/2/3 ALERT/OPERATE/SAFE switches are set to SAFE.**	
2a. BCC: power on. FIRE SECTION STBY pushbutton (FC): press and release. **LCHR No. 1 select pushbutton: lights provided a missile simulator is connected to at least one arm on LCHR No. 1.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2-1. LCHR No. 1. *K3-10, -9, zone B8. *TB2-1, zone B8. J1014-0, zone B9. P3010A-X, zone B12. Miniature missile simulator. J1-X, zone B13. J1-L, zone B13. LCHR. P3010A-L, zone B14. *TB3-9, zone B17. J2-F, zone B18. LSCB. J2-F, zone A19. J1-F, zone B21. HIPIR. J4-F, zone B23. J2-w, zone B23. BCC. J1-w, zone B25. *TB1-4, zone B26. J49-1, zone B27. Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2-1.
b. LCHR No. 2 select pushbutton (FC): press and release. **LCHR No. 1 select pushbutton: goes off.** **LCHR No. 2 select pushbutton: lights.**	**LCHR No. 2 blower: operates.** **Hydraulic pump: operates**.
2c. LCHR No. 3 select pushbutton (FC): press and release. **LCHR No. 2 select pushbutton: goes off.** **LCHR No. 3 select pushbutton: lights.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2-1.
3. BCC: power on. LCHR: energize. HYD-PRESS switch (LCU): ON. LOCAL/REMOTE switch (LCU): REMOTE. LAUNCHERS 1/2/3 ALERT/OPERATE/SAFE switches (LSCB): OPERATE. FIRE SECTION STBY pushbutton (FC): press and release. **LCHR No. 1 blower: operates.** **Hydraulic pump: operates.**	HIPIR. J3-T, zone C1. J4-U, zone CS. J4-U, zone C2. J4-C, -D, zone C2. LSCB. J1-U, zone C4. *K1, zone B5. J1-C, -D, zone C4. K1-4, -7, zone A5. J2-k, -j, zone B6. LCHR. J2-k, -j, zone B7. *TB2-8, zone B8. *K3-19, -18, zone B8. *K3-20, zone B8. J4-h, zone B9. *S2-2, -1, zone A10 *(AC)[1]. *S2-4, -5, zone A11 *(AB)[1]. *S2-4,-5, zone A10. J4-X, zone A9. J2-U, zone A7. LSCB. J2-U, zone A6. *K1-3, -8, zone A5. *S4, zone A4. J2-J, -t, -b, zone A4. LCHR. J2-J, -t, -b, zone A3. *TB2-7, zone A3. *K11, zone A3. J4-g, zone B2. *S2, zone B1. *S1, zone B1. LSCB. *K2-30, zone C5. J3, zone B4. *S5, zone B4. *K2-4, -7, zone B5. J3, zone B6.

1Refer to appendix B for serial number effectively.

Table 2-5. LCHR Energizing and Control (Fig. 3-4)-Continued

Check	Circuit identification points
3-Continued. **LCHR No. 3 blower: operates.** **Hydraulic pump: operates.**	LSCB. J4, zone C4. *K2-8, -3, zone C5. J4, zone C6.

Table 2-6. Missile Present (Fig. 3-4)

Check	Circuit identification points
WARNING **If any missiles are present on the LCHRs, ensure that all umbilicals are disconnected and a shorting plug installed in each missile.** **NOTE** **All references to LCHRs, LSCBs, HIPIRs, and FCs apply to the fire section being checked.**	
1. BCC: power on. LCHR: energize. Install a miniature missile simulator on each umbilical plug of the LCHR being tested. LOCAL/REMOTE switch (LCU): REMOTE. HYD-PRESS switch (LCU): ON. LAUNCHERS 1/2/3 ALERT/OPERATE/SAFE switch (LSCB): OPERATE. FIRE SECTION STBY pushbutton (FC): press and release . **LCHR goes to standby.** **Missile present lamps (FC): All three missile present lamps associated with the LCHR containing the miniature missile simulators light**.	Refer to LCHR energizing checks (table 2-5). NOTE The following circuit identification points are for LCHR No. 1, arm A. LCHR. *K3-10, -9, zone B8. *TB2-1, zone B8. J1014-O, zone B9. P3010A-X, zone B12. Miniature missile simulator. J1-X, zone B13. J1-L, zone B13. LCHR. P3010A-L, zone B14. *TB3-9, zone B17. J2-F, zone B18.

Table 2-6. Missile Present (Fig. 3-4)-Continued

Check	Circuit identification points
	LSCB. J2-F, zone A19. J1-F, zone B21. HIPIR. J4-F, zone B23. J2-w, zone B23. BCC. J1-w, zone B25. *TB1-4, zone B26. J49-1, zone B27. J11-11, zone A28. *CR66, zone A32. DS34, zone A32. See note below.
NOTE **If two miniature missile simulators are connected, lamp DS35 also lights. If three miniature missile simulators are connected, lamp DS36 also lights. The lit lamps are not indicative of missile arms A, B, and C. They indicate the total number of missiles present on the LCHR.**	
The MISSILE COUNT lamp (BCC status indicator) counts 3.	BCC. J43-16, zone B39. J4-A, zone B40. *V2-11, zone B41.

Table 2-7. ROR Energizing (Fig. 3-5)

Check	Circuit identification points
1. ROR: local standby. **READY lamp lights within 5 minutes.**	Local ROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2.
2. ROR: local radiate. **RADIATE lamp lights.** **MAGNETRON CURRENT meter: 16.5 ma.**	Local ROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2.
3. BCC: power on. LOCAL/REMOTE switch (ROR, radar set control): LOCAL. ROR enable switch (BCC, ROR electronic control amplifier): ON. **RADIATE lamp (BCC, ROR electronic control amplifier): lights within 5 minutes.**	ROR. P4-R, zone B2. *TB11-11, zone B3. J2-s, zone B3. BCC. J9-s, zone B3. JT9-s, zone B4. J34-11, zone B5. *TB9-4, zone B4. J9-v, zone B3.

Table 2-7. IROR Energizing (Fig. 3-5)

Check	Circuit identification points
3-Continued.	ROR. J2-v, zone B3. *TB11-12, zone B3. J2-w, zone C3. BCC. J9-w, zone C3. *TB9-6, zone C4. DS-2, zone C6.
NOTE **If RADIATE lamp is flashing, check 28v return line below.**	
	ROR. *S9, zone C3. J1-P, zone C3. BCC. J8-P, zone C3. *TB7-8, zone C4. DS-2, zone C6.

Table 2-8. CWAR and PAR Azimuth (Fig. 3-6)

Check	Circuit identification points
WARNING **Clear the CWAR and PAR antenna areas.**	
1. BCC: power on. FAIL IND and UNIT FAILURE lamps: lit. GENERAL pushbutton (general test set): press and release. **GENERAL pushbutton: lights for duration of test, then goes off.** **UNIT FAILURE and FAIL IND lamps: stop flashing and go off.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
2. BCC: power on. TEST switch (scan servo amplifier): TEST ROTATE. **TCC, FCA, FCB scopes: sweep rotates from 18 to 22 rpm.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
3. PAR: local standby. PAR: antenna operate. **Antenna: rotates from 18 to 22 rpm clockwise.**	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.

Table 2-8. CWAR and PAR Azimuth (Fig. 3-6)-Continued

Check	Circuit identification points
4. ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): LOCAL. Operational program (ADP): stop. Press SINGLE INSTRUCTION pushbutton. Press DTO MANUAL RESET pushbutton. Press CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. **CWAR FAULT lamps (ADP): go off.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
5. BCC: power on. PAR: remote radiate. SCAN MODE switch (BCC): NORMAL. **TCC, FCA, FCB scopes: sweep rotates from 18 to 22 rpm.**	BCC. *TB 12-2, -3, zone A1. J5-M, -N, zone A2. PAR. J2-M, -N, zone A3. *TB10-129, -130, zone A4. TB1-X1, -X2, zone A5. B2-R1, -R2, zone B5. *TB10-121, -122, -123, zone B7. *TB20-X35, -X36, -X37, zone B8. J2-m, -n, -p, zone B8. BCC. J5-m, -n, -p, zone B9. *TB11-17, -18, -19, zone B9. P49-T, -U, -V, zone C28. J1-8, -9, -10, zones A29, B30. *K1-11, -14, -13, zones A30, B30.
6. ICC: power on. ADP: operating. Operational program (ADP): start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE.	BCC. *TB11-17, -18, -19, zone B9. J7-m, -n, -p, zone B10. ICC. J7-m, -n, -p, zone B11. *TB6-5, -6, -7, zone B11. J1-8, -9, -10, zone A20. K3-6, -12, -2, zone B21. K4-6, -12, -2, zone B22. K6-6, -12, -2, zone B22. *TB6-9, -10, -11, zone B23. *TB2-17, -16, -15, zone B24.
7 CWAR: local false radiate. CWAR: antenna operate. ANTENNA MODE switch (CWAR): LOCAL ROTATE. **CWAR antenna: rotates from 18 to 22 rpm.**	Local CWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-2.

Table 2-8. ICWAR and IPAR Azimuth (Fig. 3-6)-Continued

Check	Circuit identification points
8. IBCC: power on. ICWAR: remote false radiate. ICWAR: antenna operate. SCAN MODE switch (IBCC): CW. **CWAR ROTATE lamp: illuminates.** **ICWAR antenna: rotates from 18 to 22 rpm.** **TCC, FCA, FCB ASI scopes: sweeps rotating.**	IBCC. *S5,2, -3, zone D1. *CR5, zone D1. J1-29, zone D2. *TB13-4, zone D3. J7-P, zone D4. ICC. J7-P, zone D11. *TB7-20, zone D11. J6-P, zone D12. ICWAR. J2-P, zone D13. *K2, zone D14. J1-K, zone D15. IBCC. *TB12-2, -3, zone A1. J7-M, -N, zone C2. ICC. J7-M, -N, zone C11. *TB7-8, -9, zone C11. J6-M, -N, zone C12. ICWAR. J2-M, -N, zone C13. *TB4-3, -4, zone C14. *TB2-21, -22, zone A16. *TB3-7, -8, -9, zone B17. *TB10-5, -6, -7, zone B18. J2-c, -d, -f, zone B18. ICC. J6-c, -d, -f, zone B19. *TB1-2, -3, -4, zone B19. K3-6, -12, -2, zone B21. K4-6, -12, -2, zone B22. K6-6, -12, -2, zone B22. *TB6-9, -10, -11, zone B23. J7-c, -d, -f, zone B26. IBCC. J7-c, -d, -f, zone B27. *TB12-6, -7, -8, zone B27. J1-8, -9, -10, zone B29.
9a. ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): REMOTE. **CW ROTATE lamp (auxiliary control unit): illuminated.**	ICC. *TB7-20, zone D11. J1-14, zone B20. K3, zone B21. K3-8, zone A21. K4-14, zone A22. *TB9-7, zone A23. CR22, zone D26. DS3, zone D27.

Table 2-8. ICWAR and IPAR Azimuth (Fig. 3-6)-Continued

Check	Circuit identification points
9b. IFF equipment: power on. INT ANT SYNC RPM switch (IFF): 20 CW. ANT SYNC switch (IFF): INT. **IFF antenna: rotates at 20 rpm ew.**	Local ICC fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
c. CASUALTY/CW ROTATE switch (ICC): press and release (ON). **CASUALTY lamp (ICC): flashing.**	ICC. K3-8, zone A21. *TB10-17, zone A23. S1-1 NC, zone C26. *TB11-5, zone C20. K4, zone C22. K4-9, zone A22. *TB9-6, zone A23. CR21, zone D26. DS3, zone D27.
TCC, FCA, FCB scopes: sweeps rotating in synchronism with IFF antenna.	ICC. *TB9-1, -2, -3, zone D23. K4-6, -12, -2, zone B22.
d. CASUALTY/CW ROTATE switch (ICC): press and release (off). ANT SYNC switch (IFF): EXT. **ICWAR FAULT lamp (ADP): extinguished.**	ICC. *TB1-2, -3, -4, zone B20. K3-6, -12, -2, zone B21. K4-6, -12, -2, zone B22. K6-6, -12, -2, zone B22. *TB6-9, -10, -11, zone B23. *TB2-17, -16, -15, zone B24.
10. IBCC: power on. IPAR: remote radiate. ICWAR: remote false radiate. ICWAR: antenna operate. SCAN MODE switch (IBCC): NORMAL. **ICWAR slaved to IPAR**.	IPAR. *TB1-X9, -X10, zone B5. G1, zone B5. *TB11-132, -133, zone A7. J2-c, -d, zone A8. IBCC. J5-c, -d, zone A9. *TB11-20, -17, -18, -19, zone B9. *TB12-1, zone A9. J7-a, -b, -m, -n, -p, zone B10. ICC J7-a, -b, -m, -n, -p, zone B11. *TB6-19, -20,-5,-6, -7, zone B11. J6-a, -b, -m, -n, -p, zone B12. ICWAR. J2-a, -b, -m, -n, -p, zone B13. *TB4-5, -6, -10, -11, -12, zone B14.

Table 2-9. ICWAR Scan Mode Switching (Fig. 3-7)

Check	Circuit identification points
1. ICWAR: local full radiate. **ICWAR XMTR FAILURE lamp (control indicator): extinguished.**	Local ICWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-2.
2a. ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): LOCAL. ADP operational program: stop. MANUAL RESET (ADP): press and release.	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
b. ADP operational program: start. LOCAL/REMOTE switch (ADP): REMOTE. **ICWAR FAULT lamp (ADP): extinguished.**	ICWAR azimuth input fault. Refer to table 2-8.
3. ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): REMOTE. SECTOR START switch (ADP): value not equal to SECTOR STOP switch. **SECTOR lamp (ADP): flashes.**	ICC. *TB3-1, -2 zone Al. J6-J, -B, zone A2. ICWAR. J2-J, -B, zone A2. *TB2-11, zone A3.
ICWAR: remote full radiate. **ICWAR XMTR FAILURE lamp (control indicator): extinguished.** **ASI display indicates mode switching on alternate scans (target of opportunity required).**	E1, zone B3. J1-21, zone A4. CR15, zone A4. Q4, zone A4. K1-2, -8, zone A5.

Table 2-10. PSI Video (Fig. 3-8)

Check	Circuit identification points
1. IBCC: power on. FAIL IND and UNIT FAILURE lamps: extinguished. GENERAL pushbutton (general test set): press and release. GENERAL pushbutton: illuminates for duration of test, then extinguishes. UNIT FAILURE and FAIL IND lamps: stop flashing and extinguish.	Local IBCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
2. ICWAR: local radiate. ICWAR: antenna operate. ANTENNA MODE switch (ICWAR): LOCAL ROTATE. ICWAR scope: target information present.	Local ICWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-2.
3. IBCC: power on. ICWAR: remote radiate. ICWAR: antenna operate. SCAN MODE switch (CWTDC): CW. FC scopes: target speed video appears in correct PSI rings.	ICWAR. A12WlJ2-D, zone B1. *TB1-10, zone B2. J2-k, zone B2. ICC. J6-k, zone B3. *TB1-17, zone B4. J7-k, zone B4.

Table 2-10. PSI Video (Fig. 3-8) -Continued

Check	Circuit identification points
3-Continued. TCC scope: target speed video appears in correct PSI rings.	IBCC. J7-k, zone B5. *TB12-11, zone B6. J2-20, zone C11. **NOTE** **For reference points where video is in PSI rings 2, 3, or 4, follow the same procedure as above.** PSI 2. J2-F, zone B1. PSI 3. J2-BB, zone C1. PSI 4. J2-EE, zone C1.

Table 2-11. ICWAR Digital Word and Clock (Fig. 3-8)

Check	Circuit identification points
1. ICWAR: local radiate. ICWAR: antenna operate. **SIG PROC FAILURE lamp (ICWAR): extinguished**.	Local ICWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-2.
2. ICC: power on. ADP: operating. Operational program (ADP) : stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. **ICWAR FAULT lamps (ADP): extinguished.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
3. ICWAR: remote radiate. ICWAR: antenna operate. ICC: power on. ADP: operating. Operational program (ADP): start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. **ICWAR FAULT lamps (ADP): extinguished.** **ADP symbol appears on PPI and correlates with ICWAR ASI video.**	ICWAR. P16, zone D1. TB2-1, zone D2. J2-u, zone D2. ICC. J6-u, zone D3.

Table 2-12. CWTDC Doppler (Fig. 3-9)

Check	Circuit identification points
IBCC: power on. ICWAR: local radiate. ICWAR: antenna operate. ANTENNA MODE switch (ICWAR): LOCAL ROTATE. **LOUDSPEAKER (ICWAR): doppler and noise audible.** **CWTDC headset (IBCC): doppler and noise audible.**	Local ICWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-2. ICWAR. *TB3-15, zone B1. J2-Z, zone B2. ICC. J6-Z, zone A1. *TB7-12, zone A1. J7-Z, zone A2. IBCC. J7-Z, zone A2. *TB12-9, zone A3. *T3, zone A4. J2-E, -F, zone A4. J2-D, -H, zone C4. J1-D, -H, zone C4. J12-1,-17, zone C5. *R1, zone C6. J10-E, -F, zone D5.

Table 2-13. ICWAR Trigger and Commutated Video (Fig. 3-10)

Check	Circuit identification points
1. IBCC: power on. **CWTDC indicator: sweep present**.	Local IBCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
2. IBCC: power on. FAIL IND and UNIT FAILURE lamps: extinguished. GENERAL pushbutton (test set control): press and release. **GENERAL pushbutton: illuminates for duration of test, then extinguishes.** **UNIT FAILURE and FAIL IND lamps: stop flashing and extinguish.**	Local IBCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
3. ICWAR: local radiate. ICWAR: antenna operate. ANTENNA MODE switch (ICWAR): LOCAL ROTATE. **ICWAR scope: correct vertical sweep and target information present.**	Local ICWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-2.
4. IBCC: *(G)[1] ICWAR: remote radiate. ICWAR: antenna operate. SCAN MODE switch (CWTDC): CW. **CWTDC scope: vertical sweep and target information present.**	power on. IBCC. *TB7-3, zone A8. J7-U, zone A9. ICC. *TB6-13, zone A10. ICWAR. *TB2-13, zone A11. J1-E, zone A12. K1-1, -8, -3, zone C2. E1, zone C3. J1-EE, zone C4. J2-r, zone C5. ICC. J6-r, zone C5. *TB6-3, zone C6. J7-r, zone C6. IBCC. J7-r, zone C8. *C3, zone C7. *T3, zone C8. *TB12-4, zone C9. CR6, zone C10. J2-12, zone C11. J8-1, zone C12.

[1]Refer to appendix B for serial number effectively.

Table 2-13. ICWAR Trigger and Commutated Video (Fig. 3-10)-Continued

Check	Circuit identification points
4. IBCC: power on. *(F)1 ICWAR: remote radiate. ICWAR: antenna operate. SCAN MODE switch (CWTDC): CW. **CWTDC scope: vertical sweep and target information present.**	ICWAR. J1-EE, zone C3. J2-r, zone C4. ICC. J6-r, zone C4. TB6-3, zone C4 J7-r, zone C4. IBCC. J7-r, zone C5. *C3, zone C5. *T3, zone C6. *TB12-4, zone C6. CR6, zone C8. J2-12, zone C9.

Table 2-14. IPAR Frequency (Fig. 3-11)

Check	Circuit identification points
1. IPAR: local standby. FREQ INC-DECR switch (IPAR): INCR and then DECR. **XMTR FREQ meter (IPAR): +50 and then -50.** 2. IBCC: power on. IPAR: remote standby. INCR-DECR switch (IBCC IPAR frequency control): INCR and then DECR. **XMTR FREQ meter (IPAR): +50 and then -50.**	Local IPAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2. IPAR. S1-2B, zone A1. J2-J, zone A2. IBCC. J5-J, zone A3. *TB11-2, zone A3. S1, zone A5. J1-3, -6, -4, zone A6. *TB11-3, zone AS. *TB10-20, zone BS. *TB11-1, zone BS. J5-K, -F, -H, zone A8. IPAR. J2-K, -F, -H, zone A9. *TB7-183, zone A10. *TB6-181, -182, zone B10. *TB9-183, zone All. *TB7-181, -182, zone B11. *TB10-215, zone B12. *TB1-215, zone B10. J2-h, zone B9. IBCC. J5-h, zone B8. *TB11-9, zone B8. J1-1, zone B6. M1, zone B5.

Table 2-15. Deleted.

Table 2-16. PAR Video (Fig. 3-12)

Check	Circuit identification points
1. BCC: power on. FAIL IND and UNIT FAILURE lamps: go off. TEST switch (general test set): OPERATE. GENERAL pushbutton (test set control): press and release. **GENERAL pushbutton: lit for duration of test, then goes off.** **UNIT FAILURE and FAIL IND lamps: stop flashing and go off.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2-1.
2a. PAR: local radiate. Data cables from IPAR: disconnect. PAR TERMINATE switch: LOCAL. MODE switch: NORMAL. RECEIVER MODE switch: DFF/DF. DFF/DF switch: DF. INTEGRATOR switch: ON. BLANKER switch: OFF. VIDEO GAIN control: mechanical center. **Scope (PAR): ground clutter and noise visible.**	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
b. RECEIVER MODE switch: BB. **Scope (PAR): ground clutter and noise visible**.	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
c. MODE switch: MTI. **Scope: ground clutter is greatly reduced.**	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
d. MODE switch: NORMAL. INTEGRATOR switch: ON. **Random pulse or noise interference is attenuated.**	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
3. ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): LOCAL. Operational program: stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. **CWAR FAULT lamps (ADP): go off.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-4-3.

Table 2-16. PAR Video (Fig. 3-12)-Continued

Check	Circuit identification points
4. PAR: local radiate. **NOTE** **Ensure data cables are connected.** ICC: power on. BCC: power on. ADP: operating. Operational program (ADP): start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. PAR TERMINATE switch (PAR): REMOTE. MODE switch (PAR): NORMAL. RECEIVER MODE switch: DFF/DF. DFF/DF switch (PAR): DF. INTEGRATOR switch (PAR): OFF. BLANKER switch (PAR): OFF. **TCC, FCA, FCB scopes: ground clutter and noise visible. Spoking (multiple sweep indication) not present on TCC scope.**	PAR. J6, zone C19. P23, zone C20. P28, zone C20. J2-u, zone C21. BCC. J5-u, zone C22. *TB10-18, zone C24. BCC. J21-42, zone C28. ICC. J5-42, zone C29. TB2-4, zone C29.
CWAR FAULT lamps (ADP): go off.	
5a. PAR: remote radiate. ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): REMOTE: BCC: power on. MTI indicator-switch (TCA panel): press and release. **TCC, FCA, FCB scopes: MTI video displayed.** **TCC scope: two intensified rings indicate azimuth sector of interest. The first sector ring at either 10, 20, or 30 km as determined by TARGET EXTRACTION SECTOR START (KM) switch (PAR) and second ring at 110 km.**	ICC. TB7-6, -7, zone C2. J7-D, -T, zone C2. BCC. J7-D, -T, zone C3. TB9-21, zone C3. J56-N, zone C4. J53-13, zone C4. K2 zone C6 2-20, -21 zone C14 J56-e, -a, zone C14 *TB10-9,-8,zoneB1. J5-B, -g, zone B15. PAR. J2-B, -g, zone B16. *TB1-214, zone B16. K4, K10, zone B18.

Table 2-16. IPAR Video (Fig. 3-12)-Continued

Check	Circuit identification points
5b. MTI-BB/DF indicator-switch (TCA panel): press and release. **TCC, FCA, FCB scopes: gated MTI video displayed except for within the sector of interest where gated MTI video is displayed out to 20, 40, 60, 80, or 110 km as determined by MTI RANGE (KM) switch (IPAR).** **TCC, FCA, FCB scopes: gated normal video displayed from end of MTI range to 110 km.**	
c. BB/DF indicator switch (TCA panel): press and release. RECEIVER MODE switch (IPAR): BB. **TCC, FCA, FCB scopes: sufficient hack-bias video is displayed.**	
d. DFF/DF switch(IPAR): DF. **TCC, FCA, FCB scopes: sufficient integrated dicke-fix video is displayed.**	
e. DFF/DF switch (IPAR): DFF. **TCC, FCA, FCB scopes: video is variable in intensity.**	
f. BB/DF NON-INTEG indicator-switch (TCA panel): press and release. **TCC, FCA, FCB scopes: dicke-fix video is displayed.**	

Table 2-17. IPAR Signal Strength (Fig. 3-12)

Check	Circuit identification points
1. IPAR: local radiate. MODE switch: NORMAL. INTEGRATOR switch: OFF. **A-scope: normal noise present.** INTEGRATOR switch: ON. **A-scope: random interference disappears. Video is bright and clearly defined.**	Local IPAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
2. IPAR: local radiate. IBCC: power on. Receiver mode switch (IBCC): AUTO. SIDE LOBE BLANKING indicator-switch (TCA panel): press and release. Adjust: METER ZERO control IPAR frequency control, (IBCC) until: **SIG STR meter indicates a null (IPAR frequency control).**	IBCC. J11-H, zone A7. P3-15, zone A8. S1, zone A8. P3-3, zone A12. J11-M, zone A13. *TB10-11, zone A15. J5-a, zone A15. S1, zone D13. *TB10-15, zone D15. J5-k, zone D15.

Table 2-17. IPAR Signal Strength (Fig. 3-12)-Continued

Check	Circuit identification points
2-Continued.	IPAR. J2-a, zone A16. *K1-7, -8, zone A17. J2-k, zone C16. *K1-3, -2, zone C17. *TB9-225, zone A20. J2-L, zone A21. IBCC. J5-L, zone A22. *TB11, -13, zone A23. J1-7, zone A26. M2, zone A26.

Table 2-18. IFF Target Identification (Fig. 3-13)

Check	Circuit identification points
1. ICC: power on. IFF equipment: power on. ANT SYNC switch (IFF): INT. INT ANT SYNC switch (IFF): CW 20 RPM. **Interrogator control panel R/T, SYNC, PROC, ANT, KIR FAULT lamps (IFF): extinguished (see note below).**	Local IFF fault. Refer to fault isolation procedures in TM 9-1430-1535-12-4-1.
NOTE **ANT FAULT lamp illuminates when antenna is not rotating, or not rotating properly during system operation. KIR FAULT lamp illuminates continuously, if KIR-1A/TSEC unit is not installed.**	
Interrogator control panel CHALLENGE switch (IFF): press and hold to TEST. **All interrogator control panel FAULT lamps (ADP): extinguished.** CHALLENGE switch (IFF): release. 2a. IBCC: power on. **IFF FAIL lamp (status panel): extinguished.**	ICC. *TB5-16, zone D5. J14-30, zone D6. IBCC. J15-30, zone D7. *TB10-10, zone D8. K1, zone D15.

Table 2-18. IFF Target Identification (Fig. 3-13)-Continued

Check	Circuit identification points
2b. FAIL IND and UNIT FAILURE lamps: go off. GENERAL pushbutton (general test set): press and release. **GENERAL pushbutton: lights for duration of test, then goes off.** **UNIT FAILURE and FAIL IND lamps: stop flashing and go off.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2-1.
3a. ICC: power on. IFF equipment: power on. ANT SYNC switch (IFF): EXT. INT ANT SYNC switch: 0 RPM.	
NOTE **The IFF antenna must be rotating and slaved to either the PAR or CWAR. Targets of opportunity are also required for the following checks:**	
ADP: operating. Operational program: start. BCC: power on.	
NOTE **Perform the rest of step a for auto challenge mode, or steps b through d for manual challenge mode.**	
IFF AUTO CHALLENGE OFF indicator-switch (TCA panel) : press and release. **AUTO CHALLENGE OFF indicator-switch: goes off.** **CHALLENGE indicator-switch (TCA) panel): flashes when IFF antenna scans through sector of interest as the sweep passes through the target azimuth on first scan after ADP target symbol.** **Proper IFF video returns displayed adjacent to target..** **Target symbol disappears immediately following interrogation (friendly targets), or the target continually challenged on subsequent scans depending on category and engagement ranking (unidentified targets).**	BCC. P1-16, zone B17. TB9-17, zone B18. J15-31, zone B18. ICC. J14-31, zone B20. TB2-10, zone B20. ICC. J14-C, zone C2. TB12-6, zone D2. J14-20, -21, zone D6. BCC. J15-20, -21, zone C7. TB9-9, -10, zone C. S1B-C, zone B16.
b. IFF AUTO CHALLENGE OFF indicator-switch (TCA panel): press and release. **AUTO CHALLENGE OFF indicator-switch (TCA panel): lights.**	

Table 2-18. IFF Target Identification (Fig. 3-12)-Continued

Check	Circuit identification points
3c. Mode 1 indicator-switch (TCA panel): press and release. ALL/SIF CODED indicator-switch (TCA panel): press and release. CHALLENGE indicator-switch (TCA panel): press and release. **TCA panel: mode 1, ALL and CHALLENGE indicator-switches light.** **TCC scope: all IFF codes of mode 1 are displayed.**	BCC. P1-11, zone A17. TB9-14, zone A18. P1-26, zone C17. TB10-4, zone C18. J15-15, zone C18. ICC. J14-2, zone C20. TB5-12, zone C20. TB15-13, zone C21. J1B-28, zone C21. J13-X, zone C23. J14-15, zone B20. TB5-11, zone B20. TB15-12, zone B21. J1B-25, zone B21. J13-u, zone B23.
d. ALL/SIF CODED indicator-switch (TCA panel): press and release. CHALLENGE indicator-switch (TCA panel): press and release. **TCC scope: only selected code for mode 1 displayed.**	
NOTE **Repeat steps b through d for modes 2 and 3 (mode indicator switches 2 and 3). Repeat steps b through d for mode 4 only if the IFF equipment contains the KIRIA/TSEC computer.**	

Table 2-19. ADP Fire Mode (Fig. 3-14)

Check	Circuit identification points
1. ICC: power on. ADP: operating. REGISTER DISPLAY switch (ADP): position 10. BCC: disable auto mode command (FIRE MODE switch: NORMAL). BCC: Disable fire section A available command (FIRE UNIT switch (FCA) : OUT OF ACTION). **Register display lamp 14 (ADP): goes off.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
2*a*. BCC: power on. FIRE UNIT switch (FCA): ACTIVE. **FCA FIRE UNIT ACTIVE label: lights.**	BCC. *S2-1C, NO, zone B1. K1-12, -3, zone B2.. K2-3, -12, zone A3. *S2-2C, NC, zone B1. K2-13, -5, zone A3. DS16, zone C1.

Table 2-19. ADP Fire Mode (Fig. 3-14)-Continued

Check	Circuit identification points
2b. FIRE UNIT switch (FCA): OUT OF ACTION **FCA FIRE UNIT ACTIVE label: extinguished**	IBCC. S2-2C, NC, zone B1. *K2, zone B3.
c. FIRE MODE switch (TCC): AUTO **AUTO FIRE label: illuminates**	IBCC. *S3-B, NC, zone D1. K1-5, -13, zone D2. *S3-NC, -A, zone D1. *K1-12, -3, zone C1. DS23, DS24, zone C2.
d. FIRE MODE switch (TCC): NORMAL **AUTO FIRE label: extinguishes**	IBCC. *S3-A, NC, zone D1. *K1, zone D1.
NOTE **The following step pertains to fire section A.**	
3. IBCC: power on ICC: power on ADP: operating Operational program (ADP): start Press the START/STEP/PULSE pushbutton twice LOCAL/REMOTE switch (ADP): REMOTE IHIPIR: remote standby ILCHR remote standby (with miniature missile simulators connected) FIRE UNIT switch (FCA): ACTIVE FIRE MODE switch (TCC): AUTO REGISTER DISPLAY switch (ADP): position 10 **Register display lamps 13 and 14 (ADP): illuminated**	IBCC. K2-14, -8, zone A3. K5-14, -8, zone A3. *TB15-21, zone B5. K16, zone B6. *TB3-16, zone A5. K16-7, -4, zone A6. *TB24-10, zone A7. J23-7, zone A7. *TB25-14, zone C7. J23-15, zone C7. ICC. J3-7, zone AS. *TB7-6, zone AS. *TB6-14, zone A9. J3-15, zone C8. *TB6-15, zone C9.

Table 2-20. ADP Request Engagement (Fig. 3-14)

Check	Circuit identification points
1a. ICC: power on ADP: operating Operational program (ADP) : stop Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. REGISTER DISPLAY switch: positions 7, 8, 9, 10, and 11.	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.

Table 2-20. ADP Request Engagement (Fig. 3-14)-Continued

Check	Circuit identification points
1a Continued. **All register display lamps (ADP); extinguished in positions 7, 8, and 9.** **Register display lamps 18, 21, and 22 (ADP): extinguished in position 10 and 11.**	
NOTE **The ICWAR and/or IPAR must be operational with targets of opportunity available.**	
1b. Operational program (ADP): start Press the START/STEP/PULSE pushbutton twice LOCAL/REMOTE switch (ADP): REMOTE **DTO and CPU FAULT INDICATORS (ADP): extinguished (10 radar scans required).**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
NOTE **The following pertains to firing section A.**	
c. REGISTER DISPLAY switch (ADP): position 9. **Register display lamps 15 and 17 (ADP): illuminated.**	
d. REGISTER DISPLAY switch (ADP): position 8. **Register display lamps (at least one of 9 through 15, and at least one of 17 through 23) (ADP): flashing.**	
e. REGISTER DISPLAY switch (ADP): position 7 **Register display lamps (at least one of 9 through 15, and at least one of 17 through 23) (ADP): flashing**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
problems.	Target acquisition
2. IBCC: power on FAIL IND and UNIT FAILURE lamps: extinguished TEST switch (general test set): OPERATE GENERAL pushbutton (test set control): press and release. **GENERAL pushbutton: illuminates for duration of test, then extinguishes.** **UNIT FAILURE and FAIL IND lamps: stop flashing and extinguish.**	Local IBCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
NOTE **Targets of opportunity must be available.**	

Table 2-20. ADP Request Engagement (Fig. 3-14)-Continued

Check	Circuit identification points
3a. IBCC: power on. IHIPIR: remote standby. FIRE UNIT switch (FCA): ACTIVE. ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): REMOTE. **IBCC ⊖ pushbutton (TCC): flashing for active fire section.** **READY lamp (status indicator): illuminated.** **TCC scope: ⊕⊖ symbol is visible.**	ICC. *TB14-5, zone A10. J3-4, zone A10. *TB24-4, zone A10. J5-4, zone A10. IBCC. J23-4, zone All. *TB24-7, zone All. *CR30, zone A15. *S22, zone A15. J21-11, zone All. *TB28-1, zone All. CR33, zone B15. S23, zone B15. ICC. *TB15-8, -7, zone C10. J14-5, -6, zone C10. IBCC. J15-5, -6, zone C11. *TB28-19, -20, zone C11. J53-14,-29, zone C13.
NOTE **Perform steps b and c for target acceptance, or steps d and c for refusal.**	
b. Flashing pushbutton (TCC): press and release. **Flashing ¢ pushbutton (TCC): extinguishes.**	
c. REGISTER DISPLAY switch (ADP): position 10 **Register display lamp 21: illuminated**	IBCC. *S22, zone A15. *TB24-16, zone A17. J23-44, zone A17. *S23, zone B15. *TB28-3, zone B17. J21-37, zone B17. ICC. J3-44, zone A18. J5-37, zone B18. *TB6-7, -6, zones A18, B18.

Table 2-20. ADP Request Engagement (Fig. 3-14)-Continued

Check	Circuit identification points
3d. REFUSE switch (TCC): press towards the flashing pushbutton. **TCC scope: ⊕⊖ symbol disappears or moves to** another target. Flashing ⊖ pushbutton: stops flashing.	
e. REGISTER DISPLAY switch (ADP): position 10 Register display lamp 18 (ADP): illuminated	IBCC. *S15-A, NO, zone B15. *TB24-17, zone B17. J23-41, zone B17. ICC. 33-41, zone B18. *TB6-10, zone B18.

Table 2-21. IHIPIR Automatic Azimuth and Elevation Designate (Fig. 3-15)

Check	Circuit identification points
1a. ICC: power on ADP: operating Operational program: stop Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton and the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. REGISTER DISPLAY switch (ADP): positions 3 through 9. **All register display lamps (ADP): extinguished in positions 3, 4, 5, 6, and 9.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
NOTE **The ICWAR and/or IPAR must be operational with targets of opportunity available.**	
1b. Operational program: start Press the START/STEP/PULSE pushbutton twice LOCAL/REMOTE switch (ADP): REMOTE **DTO and CPU FAULT INDICATORS (ADP): extinguished (10 radar scans required).**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
NOTE **The following pertains to firing section A.**	
c. IBCC: ADP's request for target engagement is accepted (see table 2-19) ⊕ or ⊖ pushbutton: press and release REGISTER DISPLAY switch (ADP): position 5 (azimuth designate).) **Register display lamps (at least one of 5 through 13, and at least one of 15 through 23) (ADP): illuminated.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3. Target acquisition problems.

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Table 2-21. HIPIR Automatic Azimuth and Elevation Designate (Fig. 3-15)-Continued

Check	Circuit identification points
1d. REGISTER DISPLAY switch (ADP): position 3 elevation designate). **Register display lamps 22 or 23 or both (ADP): light.**	
e. REGISTER DISPLAY switch (ADP): position 9 (auto assign hold). **Register display lamp 11 (ADP): flashes.**	
Clear HIPIR antenna area.	
2. HIPIR: local false radiate HIPIR: antenna operate	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
3. -AUTO-MANUAL switch (HIPIR): MAN TRACK AZIMUTH and ELEVATION handwheel (HIPIR): rotated. **HIPIR antenna: follows handwheel in azimuth and elevation.**	
3. BCC: power on ICC: power on ADP: operating Operational program (ADP): start Press the START/STEP/PULSE pushbutton twice LOCAL/REMOTE switch (ADP): REMOTE HIPIR: remote false radiate BCC: ADP's request for target engagement is accepted (see table 2-19).	ICC. *TB14-3, zone B1. J3-16, zone B2. HIPIR. J2-Y, zone A54. TB12-8, zone A54. J3-i, zone A54. BCC. K18-11, -10, zone B5. K19-1, -6, zone B6. J23-16, zone B2 TB2-8, zone B3. *DS1, zone B4
BCC: AUTO HOLD (monitor panel), AUTO and SEARCH (FC), AUTO ASSIGN (TCC), and ASSIGNED (status indicator) lamps light. Corresponding priority symbol and SEARCH labels (status indicator) light	DK19-13, -5, zone A6. DS3, DS4, zone B9. DS3, zone All. J2-i, zone B56. *TB2-11, zone B56. DS2, DS94, zone B58. K19-12, -3, zone B6. DS5, DS6, zone B11. J2-2, zone C11.

Table 2-21. HIPIR Automatic Azimuth and Elevation Designate (Fig. 3-15)-Continued

Check	Circuit identification points
3-Continued. **HIPIR: antenna slews to designated azimuth searches.**	ICC. *TB15-1, -2, -3, zone C1. J3-20, -21, -36, zone C2. BCC. J23-20, -21, -36, zone C2. TB24-18, -19 -20, zone C3. J6-b, -a, -Z, zones B14, C14. J6-S, zone C14. K18, zone C14. J6-W, -X, -Y, zones B16, C16. *TB25-17, -18, -19, zones B17, C17.
	Refer to figure 7-4 for the following: BCC. K1-4, -10, -13, zones A36.4, B36.4. *TB27-1, -2, -3, zones A36.4, B36.4. J2-c, -d, -f, zones A36.5, B36.5.
	Refer to figure 3-15 for the following: BCC. *TB32-8, -11, zone D56.
.	ICC. J3-22, -1, zone D60. HIPIR. J3-c, -d, -f, zone C19. K4-19, -16, -13, zone C21. B3, zone C27.
HIPIR: antenna slews to designated, elevation and box searches in either low, high, or alternate between the high or low	ICC. *TB14-l11, -12, zone B1. J3-2, -3, zone B2. BCC. J23-2, -3, zone B2. *TB2-7, *TB3-15, zone B3. J3-5, -32, zone C5. Refer to figure 3-19 for the following: BCC. CR32, zone C4. K12-1, -6, zone C4. K13, zone B4. B1, B2, zones Al, B1. K13-12, -13, -14, zone A4. K12-12, -13, -14, zone A4. J5-16, -17, -18, zone A5. J9-11, -12, -13, zone A6.

Table 2-21. HIPIR Automatic Azimuth and Elevation Designate (Fig. 3-15)-Continued

Check	Circuit identification points
3-Continued.	Refer to figure 3-15 for the following: BCC. *TB2-12, -13, -14, zone A47. J2-D, -E, -F, zone A48. HIPIR. J3-D, -E, -F, zone A50. K4-3,-6,-9, zone A51. J11-R, -S, -T, zone B25. B6, zone B28.

Table 2-22. HIPIR Automatic Range and Speed Designate (Fig. 3-15)

Check	Circuit identification points
1a. ICC: power on. ADP: operating. Operational program: stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. **All register display lamps (ADP): extinguished in positions 3 (HIPIR A) and 4 (HIPIR B).**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
NOTE **The CWAR and/or PAR must be operational with targets of opportunity available.**	
b. Operational program: start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. **DTO and CPU FAULT INDICATORS (ADP): extinguished (10 radar scans required).**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
NOTE **The following pertains to firing section A.**	
c. REGISTER DISPLAY switch (ADP): position 3. **Register display lamps (at least one of 10 through 15 for speed designate, and at least one of 16 through 20 for range designate) (ADP): illuminated.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3. Target acquisition problems.

Table 2-22. HIPIR Automatic Range and Speed Designate (Fig. 3-15)-Continued

Check	Circuit identification points
2.*(T)'	
a. HIPIR: local false radiate. AUTO TRACK/MANUAL TRACK switch (HIPIR): AUTO TRACK. Control-indicator panel speed designate switch (HIPIR): AUTO DESIGNATE. Range interlock computer APPROACH/RECEDE switch: set and hold to APPROACH. **RANGE indicator dial (HIPIR); 25 -+ 1 APPROACH.** APPROACH/RECEDE switch: release.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
b. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch; press for TEST indication. LOCK switch (HIPIR): LOCK DISABLE, then to NORMAL. LOCK lamp (HIPIR): ,illuminates. **SIGNAL STRENGTH meter (HIPIR): indicates in green or yellow area.** **TARGET SPEED meter (HIPIR); 715 + 100 Kmph.** Speed designate switch (HIPIR): NORMAL. LOCK switch (IHIPIR): LOCK DISABLE.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
2.*(R)	
a. HIPIR: local false radiate. AUTO TRACK/MANUAL TRACK switch (HIPIR): AUTO TRACK. Control-indicator panel speed designate switch (HIPIR): AUTO DESIGNATE. Tracker 1 RANGE TEST pushbutton (HIPIR): press and hold. **RANGE indicator dial (HIPIR): 40 RECEDE.** RANGE TEST pushbutton (HIPIR) : release.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-533-12-4.
b. EXERCISE switch (HIPIR) : position 7. Lock switch (HIPIR): LOCK DISABLE, then to NORMAL. **LOCK lamp (HIPIR): illuminates.** **SIGNAL STRENGTH meter (HIPIR): indicates in the green or yellow area.** **TARGET SPEED meter (HIPIR): more than 1800.** Speed/designate switch (HIPIR) : NORMAL. Lock switch (HIPIR): LOCK DISABLE. EXERCISE switch (HIPIR): position 1 (OFF).	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-533-12-4.
NOTE **Targets of opportunity must be available.**	

~~Refer to appendix B~~ for serial number effectively.

Table 2-22. HIPIR Automatic Range and Speed Designate (Fig. 3-15)-Continued

Check	Circuit identification points
3. BCC: power on. ICC: power on. ADP: operating. HIPIR: remote full radiate. BCC: ADP's request for target engagement is accepted (table 2-20). HIPIR: slews to designated target and searches (table 2-21) until	
LOCK lamp (HIPIR): illuminates (see note below).	Refer to step 2b above.
SIGNAL STRENGTH meter (HIPIR): indicates in green or yellow area.	Refer to step 2b above.
Range indicator dial (HIPIR): indicates target range (see note below).	ICC. *TB14-11, zone B1. J3-2, zone B2. *TB20-1, zone D1. J3-42, zone D2. BCC. J23-2, zone B2. *TB2-7, zone B3. J6-R, zone B14. K19, zone B14. J23-42, zone D2. *TB25-1, zone D3. J6-g, zone A14. K19-8, -14, zone A14. J6-c, zone A16. **TB29-10, zone A17. J1-u, zone A17. HIPIR. J2-u, zone A19. *TB13-2, zone A19 *(T)[1] *TB4-6, zone A19 *(R) . ICC. *TB15-5, zone C1. J3-34, zone C2. BCC. J6-S, zone C14. K25, zone D15. J23-34, zone C2. *TB24-14, zone C3. J8-S, zone D14. K25-3, -8, zone C15. K26-2, -8, zone D16. *TB30-9, zone C17. J1-H, zone C17.
NOTE **LOCK lamp cycles on and off, if ADP range designation exceeds HIPIR after lock calculation by more then 10 km. This indicates that HIPIR is not locked on ADP designated target.**	
TARGET SPEED meter (HIPIR): indicates target speed.	

[1]Refer to appendix B for serial number effectively.

Table 2-22. HIPIR Automatic Range and Speed Designate (Fig. 3-15)-Continued

Check	Circuit identification points
3-Continued.	HIPIR. J2-H, zone C19. J1-B, zone C20. K1-2, -8, zone D20. TB8-11, zone D22.
FCA range/speed SCOPE (BCC): displays HIPIR video.	**Refer to table 2-30.**

Table 2-23. HIPIR Range and Range Repeatback Mark (Fig. 3-16)

Check	Circuit identification points
1a. BCC: power on. TEST switch (range elect cont ampl): all test positions.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
Range elect cont ampl ZERO ADJUST meter: black line indication for all positions.	
TEST switch (range elect cont ampl): NORMAL.	
b. TEST switch (scan servo ampl): TEST ROTATE. SYSTEM ACCURACY TEST switch (FC): ON.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
TCC and FC scope: range repeatback displayed between 3rd and 4th range rings.	
2. HIPIR: local radiate. HIPIR: antenna operate. LOCK switch (HIPIR): NORMAL. HIPIR *(T)[1] servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch: press for TEST indication. HIPIR *(R)': radar set group EXERCISE switch: position 3. AUTO-MANUAL switch (HIPIR): AUTO TRACK. HIPIR RANGE dial: 30 KM approach.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 *(T)' or TM 9-1430-533-12-4 *(R)'.
3. BCC: power on. HIPIR: local radiate. SYSTEM ACCURACY switch (FC): OFF. LOCK switch (HIPIR): NORMAL. HIPIR *(T) [1:] servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch: press for TEST indication. HIPIR *(R)[1]: radar set group EXERCISE switch (HIPIR): position 3.	HIPIR. B2, zone Al. J3-m, -n, -p, zone A4. BCC. J2-m, -n, -p, zone A4. *TB3-17, -18, -19, zone A5. *TB1-11, -12, -13, zone A6.
AUTO MANUAL switch (HIPIR): AUTO TRACK.	
TCC and FC scope: range repeatback mark appears at 30 KM range.	

Table 2-24. HIPIR Lock (Fig. 3-16)

Check	Circuit identification points
1. HIPIR: local radiate. HIPIR: antenna operate. AUTO-MANUAL switch (HIPIR): AUTO TRACK. LOCK switch (HIPIR): NORMAL. Servo control unit SERVO CONTROL TEST TEST GOOD indicator-switch (HIPIR): press for TEST indication. **TEST label (HIPIR): lights immediately.** **Within 4 minutes the GOOD label (HIPIR) lights and the TEST label goes off.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
2. ICC: power on. ADP: operating. Operational program (ADP): stop. Press SINGLE INSTRUCTION pushbutton. Press DTO MANUAL RESET pushbutton. Press CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. REGISTER DISPLAY switch (ADP): position 10. LOCK switch (HIPIR): LOCK DISABLE. **Register display lamp 15 (ADP): goes off.** **NOTE** **Ensure that BCC is not in HIPIR test.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
3. BCC: power on. HIPIR: local -radiate. AUTO-MANUAL switch (HIPIR): AUTO TRACK. LOCK switch (HIPIR): LOCK HOLD. . **FC cover LOCK lamps (BCC): light**	HIPIR. *TB12-10, zone B3. J3-k, zone B4. BCC. J2-k, zone B4. *TB2-9, zone B5. K17-11, -9, zone B10. K20, zone B10. DS2, zone B12.

Table 2-24. HIPIR Lock (Fig. 3-16)-Continued

Check	Circuit identification points
3-Continued. **Battery status indicator TARGET LOCK lamps (BCC): light.**	BCC. J4-25, zone B11. DS1, DS2, zone A15.
4. ICC: power on. ADP: operating. Operational program (ADP): start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. REGISTER DISPLAY switch (ADP): position 10. **Register display lamp 15 (ADP): lit.**	BCC. J23-12, zone B16. ICC. J3-12, zone B17. *TB6-13, zone B17.

Table 2-25. HIPIR Coast (Fig. 3-16)

Check	Circuit identification points
1. HIPIR: local radiate. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch (HIPIR): press for TEST indication. AUTO-MANUAL switch (HIPIR): AUTO TRACK. LOCK switch (HIPIR): NORMAL. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch (HIPIR): press. **MEMORY lamp (HIPIR): lights for 10 seconds, then goes off.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
2. BCC: power on. HIPIR: local radiate. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch (HIPIR): press for TEST indication. AUTO-MANUAL switch (HIPIR): AUTO TRACK. LOCK switch (HIPIR): NORMAL. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch (HIPIR): press. COAST lamps (status indicator and FC): flashes for 10 seconds, then go off; and LOCK lamp (BCC) remains lit for 10 seconds, then goes off.	HIPIR. *TB12-11, zone B3. J3-A, zone B4. BCC. J2A, zone B4. *TB2- zone B5 DS15, zone A8. K17-12, -2, zone B10. K20, zone B10.

Table 2-26. HIPIR Target Speed (Fig. 3-16)

Check	Circuit identification points
BCC: power on. HIPIR: local radiate. Servo control unit RADAR SYSTEM TEST TEST/GOOD in- dicator-switch (HIPIR): press for TEST indication. LOCK switch .IIPIR): NORMAL **TARGET SPEED meter (HIPIR): 715 + 100 kmph**. **TARGET SPEED meter (BCC): 715 + 100 kmph**.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2. HIPIR. K5-2, -3, zone C2. *TB8-3, zone C. J3-P, zone C4. BCC. J2-*p*, zone C4. *TB2-4, zone C5. *M3, zone B8.

Table 2-27. HIPIR Signal Strength (Fig. 3-16)

Check	Circuit identification points
BCC: power on. HIPIR: local radiate. HIPIR: servo control unit RADAR SYSTEM TEST TEST/ GOOD indicator-switch: press for TEST indication. LOCK switch (HIPIR): NORMAL. **SIGNAL STRENGTH meter (HIPIR): green or yellow area.** **SIGNAL STRENGTH meter (FC): HIGH.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 HIPIR. *TB11-3, zone B24.8 J3-h, zone A22. BCC. J2-h, zone D4. *TB2-5, zone D5. *M2, zone B8.

Table 2-28. HIPIR Audio and Reconstituted Doppler (Fig. 3-16)

Check	Circuit identification points
1. HIPIR: local radiate. Mail fuse panel NORMAL/DOPPLER TEST switch (HIPIR): press and hold to DOPPLER TEST. **LOUDSPEAKER (HIPIR): doppler audible**. DOPPLER TEST switch (HIPIR): release.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
2. ICC: power on. ADP: on. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. **HPI FAULT lamps (ADP): off**.	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
3. BCC: power on. ADP: (on. Operational program (ADP): loaded. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. HIPIR: local radiate. **FC headset (BCC): doppler audible**. **HPI FAULT lamps (ADP): off.**	HIPIR. *TB9-12, zone D24.6. J3-r, zone C24.9. BCC. J2-r, zone C24.10. *TB2-2, zone C24.11. *T1, zone C7. *R1, zone C14. *R1, zone C14. Headset, zone C15. HIPIR. *TB6-12, zone C24.8. J3-u, zone C24.9. BCC. J2-u, zone C24.10. *TB25-15, zone C24.11. J23-45, zone B16. ICC. J3-45, zone B17. *TB5-1, zone B17. *TB2-1, zone B18.

Table 2-8.1 Deleted

Table 2-28.2. HIPIR Tone Burst (Fig. 3-16)

Check	Circuit identification points
1. BCC: power on. TEST/OPERATE switch (BCC): position 3. ICC: power on. ADP: operating. Operational program (ADP): start. Press the START/STEP/PULSE pushbutton twice. HIPIR: remote radiate. Mode switch (BCC firing interlock assembly): ADP. **FC headset (BCC): continuous tone audible.**	BCC. *TB17-20, zone A42.8. K1-1, zone A42.11. A13K6-13, zone B42.8. J8-A, zone B42.9. K1-8, -14, zone A42.11. *TB17-9, zone A42.14. J22-4, zone A42.17. P69-P, zone C7. K1-1, -3, -5, zone C7.
2. Mode switch (BCC firing interlock assembly): HPI. **FC headset (BCC): continuous tone audible**.	BCC. J2-1, zone B42.2. J2-24, zone B42.3. S1-1A-1-12, zone B42.5. K2-7, zone A42.5. *TB17-16, zone A42.8. K1-17-14, zone A42.11.

Table 2-29. HIPIR Angular Velocity (Fig. 3-16)

Check	Circuit identification points
1. HIPIR: local radiate. Servo control unit SERVO CONTROL TEST TEST/GOOD indicator-switch (HIPIR): press for TEST indication. **TEST label (servo control unit) lights. GOOD label (servo control unit) lights within 4 minutes and TEST label goes off.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
2. ICC: power on. ADP: operating. Operational program (ADP): stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL **HPI A CHANNEL lamps: off.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
3. HIPIR: local radiate. ICC: power on. ADP: operating. Operational program: start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. Lock switch (HIPIR): NORMAL. AUTO TRACK/MANUAL TRACK switch (HIPIR): AUTO TRACK. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch (HIPIR): press for TEST indication. **HPI A FAULT AZ RATE lamp (ADP): off.** **HPI A FAULT EL RATE lamp (ADP): off**.	HIPIR. J4-R, zone B27 J3-K, zone B28. BCC. J2-K, zone B29. *TB24-2, zone B30. J23-18, zone C16. ICC. J3-18, zone C17. *TB5-3, zone C17. *TB2-3, zone C18. HIPIR. J3-R, zone A27. J3-R, zone A28. BCC. J2-R, zone A29. *TB24-1, zone A30. J23-17, zone B16. ICC. J3-17, zone B17. *TB5-5, zone B17. *TB2-5, zone B18.

*Table 2-30. HIPIR Video and Trigger (Fig. 3-16) *(T)*

Check	Circuit identification points
1. HIPIR: local radiate. AUTO-MANUAL switch (HIPIR): AUTO TRACK. LOCK switch (HIPIR): NORMAL. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch (HIPIR): press for TEST indication. **Oscilloscope: at TB 10-1, -2, target video and trigger is observed.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
2. BCC: power on. Display generator test switch: CAL. **FC range/speed scope: sweep is visible**. Display generator test switch: OP.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
3. BCC: power on. HIPIR: Same as step 1 above. **FC range/speed scope: target video is visible**.	HIPIR. *TB10-1, zone B24.2. J2-v, zone C24.9. BCC. J1-v, zone C24.10. *TB1-8, zone C24.11. J7-1, zone D8. J2-21, zone D12. *V1-7, zone D14. Refer to figure 3-19.3 for the following. HIPIR. *TB11-13, zone C24. J3-H, zone B28. BCC. J2-H, zone B29. *TB32-1, zone B30. *TB1-10, zone B32. K3, zone B34.

Table 2-31. HIPIR Breaklock and Change Targets (Fig. 3-17)

Check	Circuit identification points
1. HIPIR: local radiate. AUTO-MANUAL switch (HIPIR): AUTO TRACK. LOCK switch (HIPIR): LOCK DISABLE. **LOCK Lamp (HIPIR): off.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2
2*a*. BCC: power on. HIPIR: remote radiate. BCC: ELEVATION MANUAL pushbutton (FC): press. HIPIR test pushbutton (FC): press. **LOCK lamp (HIPIR): lights within 60 seconds**.	Refer to table 2-58. (BCC-HIPIR confidence test).
b. BREAKLOCK pushbutton (FC): press and release several times. **LOCK lamp (HIPIR) and FC cover and battery status indicator LOCK lamps: off when pushbutton is pressed; light when released.**	BCC. P4-31, zone A1. S21, zone A1. K14 zone B4 K14, zone B4. *TB3-4, zone B9. J2-g, zone B9. HIPIR. J3-g. zone B10. P4-E, zone B10. J1-MM, zone B11.

Table 2-31. HIPIR Breaklock and Change Targets (Fig. 3-17)-Continued

Check	Circuit identification points
3. BCC: power on. HIPIR: remote false radiate. CHANGE TARGETS pushbutton (TCC): press and hold. **CHANGE TARGETS pushbutton (TCC): illuminates**. **CHANGE TARGET label (FC): illuminates**. **BREAKLOCK lamp (HIPIR) *(R)[1]: illuminates**. CHANGE TARGETS pushbutton (TCC): release.	BCC. *S9, zone B1. K15-13, -5, zone A3. DS21, zone A1. K15-11, -10, zone A3. K14, zone B4.
4*a*. ICC: power on. ADP: operating. ADP operational program: stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. MANUAL RESET pushbutton (ADP): press and release. **Register display lamps (ADP): extinguished.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
NOTE **Targets of opportunity must be available.**	
b. ADP operational program: start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. BCC: ADP's request for target engagement is accepted (table 2-20). REGISTER DISPLAY switch (ADP): position 9. **Register display lamp 8 (ADP): illuminates.** **BREAKLOCK pushbutton (FCA): illuminates**. **BREAKLOCK lamp (HIPIR) *(R)[1]: illuminates.** **FC cover and status indicator LOCK lamps: extinguish when HIPIR breaks lock.**	ICC. *TB14-1, zone C1. J3-24, zone C1. BCC. *TB24-6,zone C2. *DS1, zone A1. K18-14, -8, zone C4. *TB3-4, zone B9.

1Refer to appendix B for serial number effectivity.

Table 2-32. HIPIR Manual Azimuth Positioning and Repeatback Mark (Fig. 3-18)

Check	Circuit identification points
WARNING **Clear the HIPIR antenna area.**	
1. HIPIR: local radiate. HIPIR: antenna operate. AUTO-MANUAL switch (HIPIR): MAN TRACK. AZIMUTH handwheel (HIPIR): rotated. **HIPIR antenna: follows handwheel in azimuth**.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 *(T)[1] or TM 9-1430-533-12-4 *(R)[1].
2. BCC: power on. SYSTEM ACCURACY TEST switch (FC): OFF. **FC scope: cursor follows handwheel**.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
3. BCC: power on. HIPIR: remote radiate. HIPIR: antenna operate. SYSTEMS ACCURACY TEST switch (FC): OFF. BREAKLOCK pushbutton (FC) : press and hold. ILLUMINATOR AZIMUTH handwheel (FC): rotated. **HIPIR antenna: follows handwheel**. BREAKLOCK pushbutton (FC) : release.	BCC. S26D, zone A2. *TB2-15, -16, -17, zone A3. K18, zone A4. *TB25-17, -18, -19, zone A6. J2c, -d, -f, zone A6. Refer to figure 7-4 for the following: BCC. K1-4, -10, -13, zone A36.4. *TB27-1, -2, -3, zone A36.4. J2-c, -d, -f, zone A36.5. Refer to figure 3-18 for the following: HIPIR. J3-c, -d, -f, zone A7. K4-13, -16, -19, zone A8. B3, zone A11. Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
4. BCC: power on. TEST switch (scan servo ampl): TEST ROTATE. SYSTEM ACCURACY TEST switch (FC): ON. **FC and TCC scopes: azimuth repeatback mark displayed.**	HIPIR. B2, zone B11. *TB11-5, -6, -7, zone A15. J2-c, -d, -f, zone A16. BCC. J1-c, -d, -f, zone A16. *TB25-11, -12, -13, zone A17. K2, zone B18. TB1-16, -17,-18, zone B20 S1, zone B22. B1, zone B24.
5. BCC: power on. HIPIR: remote radiate. HIPIR: antenna operate. SYSTEM ACCURACY TEST switch (FC): ON. TEST switch (scan servo ampl): TEST ROTATE. BREAKLOCK pushbutton (FC): press and hold. ILLUMINATOR AZIMUTH handwheel (FC): rotated. **TCC and FC scopes: repeatback mark follows handwheel.** BREAKLOCK pushbutton (FC): release.	

Table 2-33. HIPIR Manual Elevation Positioning (Fig. 3-18)

Check	Circuit identification points
WARNING **Clear the HIPIR antenna area.**	
1. HIPIR: local false radiate. HIPIR: antenna operate. AUTO-MANUAL switch(HIPIR):MAN TRACK. ELEVATION handwheel (HIPIR): rotated. **HIPIR antenna: follows smoothly in correct direction.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 *(T)[1] or TM 9-1430-533-12-4 *(R)[1].
2*a*. BCC: power on. HIPIR: remote false radiate. MANUAL pushbutton (FC): pressed and released. **Manual pushbutton illuminates.**	BCC. B1, zone C1. K12, zone C3. DS1, zone C5. *TB2-12, -13, -14, zone C6. J2-D, -E, -F, zone C6.
b. MANUAL ELEVATION knob (FC): rotated. **HIPIR antenna: follows smoothly in correct direction.**	HIPIR. J3-D, -E, -F, zone C7. *K4-3, -6, -9, zone C8. B6, zone C12.

Table 2-34. HIPIR Target Altitude (Fig. 3-18)

Check	Circuit identification points
1a. BCC: power on. TEST switch (el elect cont ampl) (BCC): all test positions. **ZERO ADJUST meter (el elect cont ampl): black line.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
b. TEST switch (rng elect cont ampl) (BCC): all test positions. **ZERO ADJUST meter (rng elect cont ampl): black line.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
2. BCC: power on. HIPIR: local false radiate. HIPIR: antenna operate. HIPIR antenna: 533 mils elevation. APPROACH-RECEDE switch (HIPIR): RECEDE. **RANGE dial (HIPIR): 25 ± 1 RECEDE.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 *(T)[1] or TM 9-1430-533-12-4 *(R)[1].

[1]Refer to appendix B for serial number effectivity.

Table 2-34. HIPIR Target Altitude (Fig. 3-18)-Continued

Check	Circuit identification points
2-Continued. **TARGET ALTITUDE meter (FC & battery status indicator): 12 to 14 km.**	Perform range checks (table 2-23) first; then check the following. HIPIR. B5, zone C12. *TB7-6, -7, -8, zone C15. J2-m, -n, -p, zone C16. BCC. J1-m, -n, -p, zone C17. *TB1-13, -14, -15, zone C17. S1, zone C22. B1, zone C24.

Table 2-35. HIPIR Elevation Search (Fig. 3-19)

Check	Circuit identification points
WARNING **Clear the HIPIR antenna area.**	
1*a*. BCC: power on. ELEVATION LOW pushbutton (FC): press and release. **LOW pushbutton (FC): illuminates**.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
b. ELEVATION HIGH pushbutton (FC): press and release. **HIGH pushbutton (FC): illuminates**. ELEVATION MANUAL pushbutton (FC): press and release.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
2*a*. HIPIR: local false radiate. HIPIR: antenna operate. AUTO-MANUAL switch (HIPIR):MAN TRACK. HIPIR antenna: 50 mils elevation. LOW/NARROW pushbutton (HIPIR) : press and hold. **HIPIR antenna: box searches above and below the initial position, the lower limit being approximately 0 mils.** LOW/NARROW pushbutton (HIPIR) : release.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 *(T)[1] or TM 9-1430-533-12-4 *(R)[1].
b. HIPIR antenna: 400 mils elevation. HIGH/ROTATE pushbutton (HIPIR): press and hold. **HIPIR antenna: box searches above and below the initial position, the lower limit being approximately 0 mils.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2 *(T)[1] or TM 9-1430-533-12-4 *(R)'.

Table 2-35. HIPIR Elevation Search (Fig. 3-19)-Continued

Check	Circuit identification points
3. BCC: power on. HIPIR: remote false radiate. HIPIR: antenna operate. LOW pushbutton (FC): press and release. **HIPIR antenna: exhibits the same approximate search pattern observed in step 2a above.**	BCC. J3-15, zone D5. *TB3-2, zone B8. J2-B, zone BS. B1, zone Al. K12-3, -5, -8, zone A4. J9-13, -12, -11, zone A5. HIPIR J3-B, zone B9. *TB12-3, zone B10. *TB12-8, zone B15. J3-i, zone B15. BCC. J2-i, zone C16. *TB2-l11, zone C17. *DS2, -9, zone C18.
4. BCC: power on. HIPIR: remote false radiate. HIPIR: antenna operate. HIGH pushbutton (FC): press and release. **HIPIR antenna: exhibits the same approximate search pattern observed in step 2b above.**	BCC. J3-13, zone C5. *TB3-3, zone B8. J2-C, zone B8. K13-1, zone B4. B2, zone B1. K13-3, -5, -8, zone A4. J5-18, -17, -16, zone A5. HIPIR J3-B, zone B9. *TB12-2, zone B10.

'Refer to appendix B for serial number effectivity.

Table 2-35.1. TAS Interface (Fig. 3-19.1)

Check	Circuit identification points
WARNING **Clear the HIPIR antenna area.**	
1. BCC: power on. TAS: READY. READY/OPERATE indicator-switch (TAS control unit (TCU): OPERATE. CAGED indicator-switch (TCU): press and release. **TCU: CAGED, NFOV, SMALL GATE, AUTO ACQ OFF, INDEP, EMCON, PI OFF labels lit.**	Local TAS fault. Refer to fault isolation procedures in TM9-1430-1536-13.
2a. BCC: power on. HIPIR: remote false radiate. TAS: READY. READY/OPERATE indicator-switch (TCU): OPERATE. **TAS display unit: TAS optics video appears.**	BCC. P2-r, zone C14. J6-i, zone C16. HIPIR. J8-a, zone C16 *(AA)[1]. J8-j, zone C16 *(Z)1. J17-j, zone C18. P1-j, zone C20. K3, zone D20. BCC. P2-x, zone B14. J6-K, zone B16. HIPIR. J8-K, zone B16. J17-K, zone B18. P1-K, zone B20. P1-K, zone B23. J2-r, -u, zone A26. P2-r, -u, zone A30. J8-r, -u, zone A32. BCC. J6-r, -u, zone A33. W87P2, zone A35. W87P3, zone B35. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.
b. Azimuth handwheel and MANUAL ELEVATION control (FC): adjust until a known land mark (KLM) at a distance greater than 7km is distinctly visible at the center of the TAS display unit. ACQ BUTTON (TCU): press and release. **TAS display unit: the dashed HIPIR cross, and small tracker gate marker symbols appear.**	BCC. P2-z, zone B14. J6-h, zone B16. HIPIR. J8-h, zone B16. J17-h, zone B18. P1-h, zone B20. P1-h, zone B23. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.

*Table 2-35.1. TAS Interface (Fig. 3-19.1) *(W)'—Continued*

Check	Circuit identification points
CAUTION **The TCU TRACKER JOYSTICK must be positioned in a vertical or horizontal direction only. Diagonal or arc-like actuation of the TRACKER JOYSTICK may result in premature failure of the assembly.**	
2*c*. TRACKER JOYSTICK (TCU): Move to a point midway between center and full up, back to a point midway between center and full down, then back to center. **TAS display unit: the HIPIR cross travels in the opposite direction of the TRACKER JOYSTICK movement.**	HIPIR. J2-J, -T, -t, zone C26. P2-J, -T, -t, zone C30. J8-J, -T, -t, zone C32. BCC J6, -T -t, zone C33. J6-J, -T, -t, zone C33. J16-h, -i, -j, zone C35. P2-n, -AA, zone A14. J6-m, -n, zone A16. HIPIR. J8-m, -n, zone A16. J17-m, -n, zoneA18. P1-n, -n, zone A20. P1-m, -n, zone A23. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.
d. TRACKER JOYSTICK (TCU): Move to a point midway between center and full right, back to a point midway between center and full left, then back to center. **TAS display unit: the HIPIR cross travels in the opposite direction of the TRACKER JOYSTICK movement.**	BCC. P2-V, W, zone D14. J6c, -d, zone D16. HIPIR. J8-c, -d, zone D16. J17, -c, -d, zone D18. Pie, -d, zone D20. P1-c, -d, zone D23. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.
e. CAGED indicator-switch (TCU): press and release. BCC. **TAS display unit: video symbology disappears, and the KLM is positioned at the center of the display.**	P2-DD, zone C14. J6-L, zone C16. HIPIR. J8-L, zone C16. J17-L, zone C18. P1-L, zone C20. P1-L, zone C23. Local TAS fault. Refer to fault isolation procedures in TM 9--1430--1536--13.

'Refer to appendix B for serial number effectivity.

*Table 2-35.1. TAS Interface (Fig. 3-19.1) *(W)l-Continued*

Check	Circuit identification points
2f. ACQ BUTTON (TCU): press and release twice. **TAS display unit: the dynamic tracker gate markers converge on the KLM video at the center of the display, and the automatic tracking indicator appears in the lower right-hand corner of the display after optical lock-on (OLO) is obtained.**	Local TAS fault. Refer to fault isolation procedures in TM 91430-1536-13
g. NFOV/WFOV indicator-switch (TCU): WFOV. **TCU: WFOV label illuminates, NFOV label extinguishes.** **TAS display unit: changes to encompass more space and NFOV markers appear.**	Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13. BCC. P2-HH, zone B14. J6-2, zone B16. HIPIR. J8-Z, zone B16. J17-Z, zone B18. P1-Z, zone B20. P1-Z, zone B23. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.
h. CAGED indicator-switch (TCU): press and release.) **TCU: WFOV label extinguishes, NFOV label illuminates**.	Local TAS Fault. Refer to fault isolation procedures in TM 9-1430-1536-13.
i. ACQ BUTTON (TCU): press and release. TRACKER JOYSTICK (TCU): adjust, if necessary, to center KLM within the small gate tracker marks. SMALL GATE/LARGE GATE indicator-switch (TCU): LARGE GATE. **TCU: SMALL GATE label extinguishes LARGE GATE label illuminates.** **TAS display unit: large gate tracker marks appear in the outer corners of the display.**	Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13. BCC. P2-k, zone B14. J6-D, zone B16. HIPIR. J8-D, zone B16. J17-D, zone B18. P1-D, zone B20. P1-D, zone B23. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.

*Table 2-35.1. TAS Interface (Fig. 3-19.1) *(W[1]-Continued*

Check	Circuit identification points
2j. INDEP/SLAVED indicator-switch (TCU): SLAVED. **TCU: INDEP label extinguishes, SLAVED label illuminates.**	HIPIR. J2-P, zone B26. P2-P, zone B30. J8-P, zone B32. BCC. J6-P, zone B33. J16-w, zone B35. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.
TAS display unit: HIPIR cross changes from a dashed to a solid cross.	BCC. P2-y, zone C14. J6-E, zone C16. HIPIR. J8-E, zone C16. J17-E, zone C18. P1-E, zone C20. P1-E, zone C23.
k. TRACKER JOYSTICK (TCU): Move to the 12 c'clock position and return to the KLM centered position. **TAS display units: the solid HIPIR cross remains fixed at the center of the display.** **The HIPIR antenna and TAS sensor unit move in unison.**	BCC. P2-GG, zone A14. *TB23-7, zone A15. J6-M, zone A16 J6-M, zone A16. HIPIR. J8-M, zone A16. Refer to figure 3-19.2 for the following: HIPIR. J2-V, zone C2. P1-30, zone C3. Local TAS or HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1536-13 or TM 9-1430-1533-12-2-2.
l. ACQ BUTTON (TCU): press and release. **TAS display unit: the automatic tracking indicator appears.** **TCU: the SLAVED label remains illuminated.**	HIPIR. J2-v, zone B26. P2-v, zone B30. J8-v, zone B32. BCC. J6-v, zone B33. J16-x, zone B35. Local TAS fault. Refer to fault isolation procedures in TM 9-1430-1536-13.
m. PI OFF/PI ON indicator-switch (TCU): PI ON. **TCU: PI ON label iluminates, PI OFF label extinguishes**.	

*Table 2-35.1. TAS Interface (Fig. 3-19.1) *(W)[1]-Continued*

Check	Circuit identification points
2 n. PI OFFSET control (TCU): set to the 3 o'clock position. BCC. P2-p, zone D14. **TAS display unit: the solid HIPIR cross is positioned to the right of the KLM.**	J6-f, zone D16 HIPIR. JS-f, zone D16. Refer to figure 3-19.2 for the following: HIPIR. J4-D, zone B2.
o. PI OFFSET control (TCU): set to the 12 o'clock position. **TAS display unit: the solid HIPIR cross is positioned above the KLM.**	Refer to figure 3-19.1 for the following: BCC. P2m, zone A14 J6-p, zone A16.
p. CAGED indicator-switch (TCU): press.	HIPIR. J8-p, zone A16. Refer to figure 3-19.2 for the following: HIPIR. J3-D, zone A2.

*Table 2-36. HIPIR Manual Speed Tracking (Fig. 3-20) *(T)'*

Check	Circuit identification points
1a. HIPIR: local false radiate. Lock switch (HIPIR): normal. Auto-manual switch (HIPIR): MAN TRACK. Signal processor TEST/GOOD indicator-switch (HIPIR): press for TEST indication. **TEST label (HIPIR): illuminates immediately.** **Within 3 minutes the GOOD label (HIPIR) illuminates and the TEST label extinguishes.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
b. Servo control unit SERVO CONTROL TEST TEST/GOOD indicator-switch (HIPIR): press for TEST indication. **TEST label (HIPIR): illuminates immediately.** **Within 4 minutes the GOOD label (HIPIR) illuminates and the TEST label extinguishes.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
2. BCC: power on. Display generator (A) test switch (BCC): CAL. RANGE AUTO pushbutton (FCA): press and release. SPEED AUTO pushbutton (FCA): press and release. Range/speed scope (FCA): sweep is displayed. Display generator (A) test switch (BCC): OP.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-152-12-2.

Refer to appendix B for serial number effectivity.

Table 2-4. HIPIR Manual Speed Tracking (fig. 3-20)-Continued

Check	Circuit identification points
3a. HIPIR: local false radiate. BCC- power on. Control-indicator panel TEST LOCAL/REMOTE switch (HIPIR): REMOTE. Auto-manual switch (HIPIR): AUTO TRACK. EMCON/RADIATE switch (HIPIR): RADIATE. AUTO SPEED pushbutton (FCA): press and release. **AUTO SPEED pushbutton (FCA): lit**.	BCC. *S33, zone A2. K2-4, -6, zone A2. DS1, zone A2. TB31-1, zone B8 (no 28 VDC)
b. Speed control (FCA): adjust for mid-scale positioning of cursor on range/speed scope. MANUAL SPEED pushbutton (FCA): press and release. **MANUAL SPEED pushbutton (FCA)t lights.** **Two speed gate repeat back marks appear at mid-scale on range/speed scope) (FCA).**	BCC. *S34, zone B1. DS1, zone B1. K2-1, zone B2. K2-, -8, zone B2. *S33, zone A2. K2-4, -7, zone A2. J49-3, zone B6. *TB31-1, zone B8. K26-1, zone B10. *TB1-10, zone B8. J1-k, zone B8. R9, zone A3. J49-31, zone B6. TB30-5, zone A8. K26-3, -8, zone A10. TB30-9, zone All. J1-H, zone A12. HIPIR. J2-k, zone B13. K5-9, -11, zone B16. J2-H, zone A13. Kl-2, -8, zone A15. *TB8-11, zone A17. *TB1-22, zone A23. P19-j, zone A25. Refer to figure 3-16 for the following: HIPIR. P7, zone B22. *TB1-31, zone B23. *TB10-1, zone B24.2. J2-v, zone C24.9. BCC. Jl-v, zone C24.10. *TB1-8, zone C24.11. J49-8, zone D7. K1-2, -8, zone Dll. P3-16, zone D13. V1-7, zone D14.

Table 2-37. HIPIR Special Lock (Fig. 3-20)

Check		Circuit identification points
1a.	HIPIR: local false radiate. AUTO TRACK/MANUAL TRACK switch (HIPIR): AUTO TRACK Lock switch (HIPIR): NORMAL. NORMAL/SIMULATED TOJ switch (HIPIR): press and hold to SIMULATED TOJ. **SPECIAL LOCK lamp (HIPIR): lights.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.

Table 2-37. HIPIR Special Lock (Fig. 3-20)-Continued

Check		Circuit identification points
2a.	HIPIR: local false radiate. BCC: power on. AUTO TRACK/MANUAL TRACK switch (HIPIR): AUTO TRACK TEST LOCAL/REMOTE switch (HIPIR): REMOTE Lock switch (HIPIR): NORMAL NORMAL/SIMULATED TOJ switch (HIPIR): set and hold to SIMULATED TOJ. **JAMMING label (FCA): flashes.** **JAMMED label (status indicator): flashes. K2-1, zone A33.**	HIPIR. *TB10-7, zone B34. J2-b, zone B35. Refer to figure 3-21 for the following: BCC. J1-b, zone A25. *TB1-3, zone A26. K9-1, zone A34. K1-12, -1, zone A32. K2-1, zone B33. K2-13,-5, zone A33. K4-4, -13, zone A34. K9-12, -13, zone A34. *TB8-3, zone A35. DS1, zone A36. DS3, DS4, zone B36.

Table 2-38. HIPIR AFC Hold (Fig. 3-20)

Check		Circuit identification points
1a.	HIPIR: local false radiate. Transmitter panel 3 DEGENERATION ALIGNMENT SELECTOR switch (HIPIR): CODING MONITOR. **DEGENERATION ALIGNMENT MONITOR meter (HIPIR): observe and record reading.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
b.	Control-indicator panel NORMAL/SIMULATED TOJ switch (HIPIR): press and hold to SIMULATED TOJ **DEGENERATION ALIGNMENT MONITOR meter (HIPIR): indicates less than half of the value observed in step 1a.** NORMAL/SIMULATED TOJ switch: release.	
2a.	HIPIR: local false radiate. BCC: power on. AFC HOLD pushbutton (FCA): press and release. **AFC HOLD pushbutton (FCA): lights.** **DEGENERATION ALIGNMENT MONITOR meter (HIPIR): indicates less than half of the value observed in step 1a.**	BCC. *S35, zone C1. K3-1, zone C2. *DSK l2, zone C2 *DS122, zone C2. *S37, zone C1. *S36, zone C2. K3-8, -3, zone C2. *TB3-12, zone B8. J2-t, zone B8.
2b.	OFF pushbutton (FCA): press and release. HIPIR. **AFC HOLD pushbutton (FCA): goes off.** **DEGENERATION ALIGNMENT MONITOR meter (HIPIR): indicates the value observed in step 1a.**	J3-t, zone A13. *TB13-9, zone B17. J6-P, zone C19. K2-1, zone C20. BCC. *S37, zone C1.

Table 2-39. ROR Mode Control (FCA) (Fig. 3-21)

Check	Circuit identification points
CAUTION **All steps in this check must be performed in sequence.** **NOTE** **Insure that HIPIR B is not in RADIATE.**	
1. HIPIR A: local false radiate. TOJ ENABLE/DISABLE (HIPIR): ENABLE. HIPIR *(T)[1]: NORMAL/SIMULATED TOJ switch: press and hold to SIMULATED TOJ. HIPIR *(R)[1]: set EXERCISE switch (HIPIR) to position 22 (ML2). **LOCK and SPECIAL LOCK lamps (HIPIR): illuminate.** HIPIR *(T)[1]: release NORMAL/SIMULATED TOJ switch. HIPIR *(R)[1]: set EXERCISE switch (HIPIR) to position 1 (OFF).	Refer to table 2-37 *(T)' or 2-37.1 *(R)[1] (HIPIR special lock).
2a. BCC: power on. KILL pushbutton (FCA): press and release. **KILL pushbutton and battery status indicator label: illuminate, then extinguish in 10 seconds.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
b. NO KILL pushbutton (FCA): press and release. **NO KILL pushbutton and battery status indicator label: illuminate, then extinguish in 10 seconds.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
3a. BCC: power on. ROR: remote radiate. RECEIVE ONLY pushbutton (FCA): press and hold. **RELEASE pushbutton (FCA): illuminates.** RECEIVE ONLY pushbutton (FCA): release.	
NOTE **Perform subcheck b below only if a bad indication was obtained in step 3a above. If good, proceed to step 4.**	
b. CALL pushbutton (FCA) : press and hold. **RELEASE pushbutton (FCA): illuminates**. CALL pushbutton (FCA): release.	BCC. P2-9, zone B4. P3-15, zone B2. S14, zone A2. *TB8-17, zone B6. J9-K, zone B6. ROR. J2-K, zone B7. *TB11-19, zone B7. K13-12, -4, zone B9. K18-11, -9, zone B10. *TB11-9, zone B7. J2-k, zone B7. BCC. J9-k, zone B6. *TB8-9, zone B6.

[1]Refer to appendix B for serial number effectively. CR15, zone B2.

Table 2-39. IROR Mode Control (FCA) (Fig. 3-21)-Continued

Check	Circuit identification points
4a. BCC: power on. ROR: remote radiate. RECEIVE ONLY pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): remains illuminated.**	BCC. *S13, zone A1. *TB8-15, zone B6. J9-H, zone B6. ROR. J2-H, zone B7. *TB13-3, zone B8. K19-1, zone A9. K11-3, zone A9. K5-3, zone B9.
b. RELEASE pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): extinguishes.**	BCC. *S15, zone B1. *TB9-1, zone A6. J9-S, zone A6. ROR. J2-S, zone A7. *TB11-17, zone A7. K11, zone B9.
c. CALL pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): illuminates.**	BCC. *S14, zone A2. *TB8-17, zone B6. J9-K, zone B6. ROR. J2-K, zone B7. *TB11-19, zone B7. K13-1, zone B9. K13-6, -4, zone B9.
d. KILL pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): extinguishes.**	BCC. J2-16, zone C3. K1-5, -13, zone C3. *TB8-19, zone B6. J9-P, zone B6. ROR. J2-P, zone B7. *TB11-15, zone B7. K5-1, zone B9. K5-12, -4, zone B9. K11-1, zone B9.
e. CALL pushbutton (FCA) : press and release. **RELEASE pushbutton (FCA): illuminates.**	
f. NO KILL pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): extinguishes.**	BCC. K3-8, zone C3.
g. CALL pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): illuminates.**	
h. BREAKLOCK pushbutton (FCA) : press and release. **RELEASE pushbutton (FCA): extinguishes.**	BCC. K14-8, zone C2. *TB8-19, zone B6.

Table 2-39. ROR Mode Control (FCA) (Fig. 3-21)-Continued

Check		Circuit identification points
5a *(T)[1]	BCC: power on. ROR: remote radiate. HIPIR A: remote radiate.	
5a *(R)[1]	BCC: power on. ROR: remote radiate. Receiver cabinet door (HIPIR A): remove. OSC POWER switch (HIPIR receiver test set): ON. EXERCISE switch (HIPIR receiver test set): position 22. HIPIR A: remote radiate. CCM OVERRIDE switch (FCA): on position. **LOCK lamp (battery status indicator): illuminates.**	Refer to table 2-24. (HIPIR lock).
b.	*(T)[1] HIPIR A: NORMAL/SIMULATED TOJ switch: set and hold to SIMULATED TOJ. *(R)[1] CCM OVERRIDE switch (FCA): off position. BREAKLOCK pushbutton (FCA): press and release.	
	JAMMING lamp (FCA) and JAMMED label (battery status indicator): flashing.	BCC. J1-b, zone A25. *TB1-3, zone A26. CR9, zone A32. K1-2, zone A32. K2-13, -5, zone A33. K4-13, zone A34. K9, zone A34. *TB8-3, zone A35. *DS1, zone A36. *DS3, DS4, zone B36.
	RELEASE pushbutton (FCA): illuminates.	BCC. *TB1-3, zone A25. *TB7-6, zone C28. J8-q, zone C29. ROR J1-q, zone D12. *TB10-2, zone D12. CR21, zone D10. K1-13, -6, zone D10. K2-3, -12, zone A10. K7-13, -6, zone D10. ROR. K7-10, zone C10. K-1, zone C.10 *TB11-13, zone C12 J2-t, zone C12.
c.	RANGE knob (FCA): press and hold.	
	JAMMING lamp (FCA) and JAMMED label (battery status indicator): stop flashing and remain illuminated.	

[1]Refer to appendix B for serial number effectively.

Table 2-39. ROR Mode Control (FCA) (Fig. 3-21)-Continued

Check		Circuit identification points
5c.	Continued.	BCC. J9-t, zone B19. *TB9-5, zone B20. J10-19, zone B22. *S1, zone B23. J1-h, zone B22. CR110, zone B2. K2-6, -13, zone B21. *TB8-13, zone B20. CR15, zone B32. K4-1, -5, -8, zone B34. *TB8-13, zone B20. J9-q, zone B19. ROR. J2-q, zone C12. *TB13-9, zone C12. K3, zone D11.
d.	RANGE knob (FCA): release. **JAMMING lamp (FCA) and JAMMED label (battery status indicator): remain illuminated.** , **RELEASE pushbutton (FCA): extinguishes within 7 seconds.**	BCC. K2-14, -8, zone B33. K2-14, -8, zone B33. CR13, zone B33. K4-3, -12, zone B34. *S1, zone B23. J1-*b*, zone B22. *TB8-11, zone B20. J9-n, zone B19. ROR. J2-n, zone D12. *TB11-7, zone D12. K3-10, zone D10. K7-8, zone D10. K15, zone B8.
e.	HIPIR A *(T)': NORMAL/SIMULATED TOJ switch: release. BCC *(R)' CCM OVERRIDE switch (FCA): on position. **JAMMING lamp (FCA) and JAMMED label (battery status indicator): extinguish.**	
f.	*(T)' HIPIR A: NORMAL/SIMULATED TOJ switch: set and hold to SIMULATED TOJ. *(R)' BCC: CCM OVERRIDE switch (FCA) off position. **JAMMING lamp (FCA) and JAMMED label (battery status indicator): remain illuminated and not flashing**. **RELEASE pushbutton (FCA): remains extinguished.** HIPIR *(T)': release the NORMAL/SIMULATED TOJ switch and set the lock switch to NORMAL. HIPIR *(R)': set the EXERCISE (HIPIR receiver test set) to position 1 (off) and secure the receiver cabinet door.	BCC. *CR11, zone A32. K2-3, 12 zone A33 ROR. K3-13, -6, zone C.11

Table 2-40. ROR Mode Control (FCB) (Fig. 3-21)

Check	Circuit identification points
CAUTION **All steps in this check must be performed in sequence following performance of the FCA mode control checks (table 2-39).** **NOTE** **Insure that HIPIR A is not in RADIATE.**	
1. HIPIR B: local false radiate. TOJ ENABLE/DISABLE switch (HIPIR): ENABLE. HIPIR *(T)[1]: NORMAL/SIMULATED TOJ switch: press and hold to SIMULATED TOJ. HIPIR *(R)[1]: set EXERCISE switch (HIPIR) to position 22 (ML2). **LOCK and SPECIAL LOCK lamps (HIPIR): illuminate.** HIPIR *(T)[1]: release NORMAL/SIMULATED TOJ switch. HIPIR *(R)[1]: set EXERCISE switch (HIPIR) to position 1 (OFF).	Refer to table 2-37 *(T)' or 2-37.1 *(R). (HIPIR special lock).
2a. BCC: power on. KILL pushbutton (FCB) : press and release. **KILL pushbutton and battery status indicator label: illuminate, then extinguish in 10 seconds.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
b. NO KILL pushbutton (FCB): press and release. **NO KILL pushbutton and battery status indicator label: illuminate, then extinguish in 10 seconds**.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
3a. BCC: power on. ROR: remote radiate. RECEIVE ONLY pushbutton (FCB): press and hold. **RELEASE pushbutton (FCB): illuminates**.	BCC. P7-21, zone D3. *TB8-16, zone D6. J9-J, zone D6. ROR. J2-J, zone C13. *TB13-4, zone C13. K20-1, zone B16. K20-10, -11, zone A16. K17-13, -5, zone A15 K20-12, -4, zone B15. *TB11-10, zone C13. J2-m, zone C13. BCC. J9-mn, zone D6. *TB8-10, zone D5. P7-24, zone D4.

[1] Refer to appendix B for serial number effectively.

Table 2-40. ROR Mode Control (FCB) (Fig. 3-21)-Continued

Check	Circuit identification points
3b. RECEIVE ONLY pushbutton (FCB): release. **RELEASE pushbutton (FCB): remains illuminated.**	ROR. K6-12, -3, zone B14. K12-12, -3, zone A14. K20-14, -8, zone A15.
c. RELEASE pushbutton (FCB) : press and release. **RELEASE pushbutton (FCB): extinguishes.**	BCC. P7-23, zone D4. *TB9-2, zone C6. J9-T, zone C6. ROR. J2-T, zone B13. *TB11-18, zone B13. K12-12, -3, zone A15.
d. CALL pushbutton (FCB) : press and release. **RELEASE pushbutton (FCB): remains illuminated**.	BCC. P7-25, zone D4. *TB8-18, zone C6. J9-L, zone C6. ROR. J2-L, zone C13. *TBll-20, zone C13. K14-12, -4, zone B15.
e. KILL pushbutton (FCB) : press and release. **RELEASE pushbutton (FCB): extinguishes**.	BCC. P7-27, zone D4. *TB8-20, zone C6. J9-R, zone C6. ROR. J2-R, zone C13. *TB11-16, zone C13. K6-12, -3, zone B15. K12-12, -3, zone A15.
f. CALL pushbutton (FCB) : press and release. **RELEASE pushbutton (FCB): remains illuminated.**	
g. NO KILL pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): extinguishes**.	BCC. P7-27, zone D4.
h. CALL pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): illuminates.**	
i. BREAKLOCK pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): extinguishes**.	BCC. P7-27, zone D4.
4 a.*(T)[1] BCC: power on. ROR: remote radiate. HIPIR B: remote radiate.	Refer to table 2-24, (HIPIR lock).

Table 2-40. ROR Mode Control (FCB) (Fig. 3-21)-Continued

Check	Circuit identification points
4a.*(R)[1] BCC: power on. ROR: remote radiate. Receiver cabinet door (HIPIR B) : remove. OSC POWER switch (HIPIR receiver test set): ON. EXERCISE switch (HIPIR receiver test set): position 22. HIPIR B: remote radiate. CCM OVERRIDE switch (FCB): on position. LOCK lamp (battery status indicator): illuminates.	Refer to table 2-24 (HIPIR lock).
b. *(T)[1] HIPIR B: NORMAL/SIMULATED TOJ switch: set and hold to SIMULATED TOJ. *(R)[1] CCMOVER RIDE switch (FCB): off position. BREAKLOCK pushbutton (FCB): press and release. **JAMMING lamp (FCB) and JAMMED label (battery** status indicator): flashing **RELEASE pushbutton (FCB): illuminates.**	BCC. J3-b, zone B25. *TB4-3, zoneB26. CR10, zone C32. K5-2, zone C32. K6-1, -5, zone C33. K1-12 -3 zone C34 TB8-4, zone C35. *DS3 and DS4, zone C36. BCC. *TB7-7, zone D29. J8-k, zone D29. ROR. J1-k, zone D18. *TB10-1, zone D18. CR23, zone D16. K2-13, -6, zone C16. K1-12, -3, zone B17. K7-12, -3, zone C15. BCC. *TB9-5, zone B20. P7-19, zone D22. P11-1, zone C22. *CR110, zone B2. J2-13, zone C21. K3-1, -11, zone C21. *TB8-14, zone C20. *CR16, zone D32. K8-13, zone C34. J9-Z, zone C20. ROR. J2-Z, zone C18. *TB13-10, zone C18. K4-1, zone C17.
c. RANGE KNOB (FCB): press and hold. **JAMMING lamp (FCB) and JAMMED label (battery status indicator): stop flashing and remain illuminated.**	

[1]Refer to appendix B for serial number effectively.

Table 2-40. ROR Mode Control (FCB) (Fig. 3-21)-Continued

Check	Circuit identification points
4d. RANGE KNOB (FCB): release. **JAMMING lamp (FCB) and JAMMED label (battery status indicator): remain illuminated.** **RELEASE pushbutton (FCB): extinguishes within 7 seconds.**	BCC. K6-14, -8, zone C33. CR14, zone D33. K8-3, -12, zone D33. P7-32, zone D22. *TB8-12, zone C20. J9-p, zone C19. ROR. J2-p, zone D18. *TB11-8, zone C18. K4-10, zone D17. K8-8, zone B17. K16-1, zone B14.

Table 2-40. ROR Mode Control (FCB) (Fig. 3-21)

Check	Circuit identification points
e. *(T)[1] HIPIR B: NORMAL/SIMULATED TOJ switch: release. *(R)[1] BCC: CCM OVERRIDE switch (FCB): on position. JAMMING lamp (FCB) and JAMMED label (battery status indicator) : extinguish.	
f. *(T)[1] HIPIR B: NORMAL/SIMULATED TOJ switch: set and hold to SIMULATED TOJ. *(R)[1] BCC: CCM OVERRIDE switch (FCB): off position. **JAMMING lamp (FCB) and JAMMED label (battery status indicator): illuminate and do not flash**. **RELEASE pushbutton (FCB): remains extinguished**. HIPIR*(T)[1]: release the NORMAL/SIMULATED TOJ switch and set the lock switch to NORMAL. HIPIR*(R)l: set the EXERCISE switch (HIPIR receiver test set) to position 1 (off) and secure the receiver cabinet door.	BCC. *CR12, zone C32. K6-3, -12, zone C33. ROR. K4-13, -6, zone C17.

Table 2-41. ROR Priority Selection (Fig. 3-21)

Check	Circuit identification points
NOTE **All steps in this check must be performed in sequence.** **NOTE** **Mode control checks for FCA and FCB must be completed prior to this check.** 1. BCC: power on. HIPIR A and B: remote radiate. ROR: remote radiate. HIPIR*(R)': set EXERCISE switches to position 22 (ML2) for HIPIR A and B. CCM OVERRIDE switch (FCA): on position. CCM OVERRIDE switch (FCB): on position. RELEASE pushbutton (FCA): press and release. RELEASE pushbutton (FCB): press and release. *(T)[1]HIPIR A: NORMAL/SIMULATED TOJ switch: set and hold to SIMULATED TOJ. *(R)[1]BCC: CCM OVERRIDE switch (FCA): off position. **RELEASE pushbutton (FCA): illuminates.** **JAMMING lamp (FCA) and JAMMED label (battery) status indicator): flashing.**	

[1] Refer to appendix B for serial number effectively.

Table 2-41. ROR Priority Selection (Fig. 3-21)-Continued.

Check	Circuit identification points
2. *(T)[1] HIPIR B: NORMAL/SIMULATED TOJ switch: set and hold to SIMULATED TOJ. *(R)[1] BCC: CCM OVERRIDE switch (FCB): off position. **JAMMING lamp (FCB) and JAMMED label (battery status indicator): flashing.** **RELEASE pushbutton (FCB): remains extinguished.** **RELEASE pushbutton (FCA): remains illuminated.**	ROR. K1-12, -4, zone B17. K7-4, -12, zone C15.
3. *(T)[1] HIPIR A: NORMAL/SIMULATED TOJ switch: release. *(R)[1] BCC: CCM OVERRIDE switch (FCA): on position. BREAKLOCK pushbutton (FCB): press and release. **RELEASE pushbutton (FCA): extinguishes. RELEASE pushbutton (FCB): illuminates**.	ROR. K1-12, -3, zone B17. K7-3, -12, zone C15.
4. *(T)[1]HIPIR B: NORMAL/SIMULATED TOJ switch: release. *(R)[1] BCC: CCM OVERRIDE switch (FCB): on position. BREAKLOCK pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): extinguishes.**	
5. CALL pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): illuminates.**	
6. *(T)[1] HIPIR B: NORMAL/SIMULATED TOJ switch: set and hold to SIMULATED TOJ. *(R)[1]BCC: CCM OVERRIDE switch (FCB): off position. **RELEASE pushbutton (FCB): illuminates. RELEASE pushbutton (FCA): extinguishes.** **CALL pushbutton (FCA): illuminates**.	ROR. K18-11, -10, zone B10. K8-4, -12, zone B10. ROR. K13-14, -8, zone B16. *TB11-5, zone C13. J2-*i*, zone C13. J9-*i*, zone D6. *TB8-7, zone D6. CR13, zone A2.
7. *(T)[1]HIPIR B: NORMAL/SIMULATED TOJ switch: release. *(R)[1] BCC: CCM OVERRIDE switch (FCB): on position. BREAKLOCK pushbutton (FCA): press and release. **RELEASE pushbutton (FCB): extinguishes. CALL pushbutton (FCA): extinguishes.** **RELEASE pushbutton (FCA): illuminates.**	

Table2-41. ROR Priority Selection (Fig. 3-21)-Continued

Check	Circuit identification points
8. CALL pushbutton (FCB): press and release. **CALL pushbutton (FCB): illuminates.**	ROR. K14-14, -8, zone D8. *TB11-6, zone C7. J2-j, zone C7. BCC. J9j, zone C6. *TB8-8, zone C6. P7-26, zone D4.
9. RELEASE pushbutton (FCA): press and release. **CALL pushbutton (FCB): extinguishes. RELEASE pushbutton (FCB): illuminates.**	
10. RECEIVE ONLY pushbutton (FCA): press and release. **RECEIVE ONLY pushbutton (FCA): illuminates.**	ROR. K19-12, -4, zone A16. *TB11-3, zone C13. J2-g, zone C13. BCC. J9-g, zone D6. TB8-5, zone D6. CR11, zone A2.
11. RELEASE pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): extinguishes. RELEASE push-button (FCA): illuminates.** **RECEIVE ONLY pushbutton (FCA): extinguishes.**	
12. RECEIVE ONLY pushbutton (FCB): press and release. **RECEIVE ONLY pushbutton (FCB): illuminates.**	ROR. K20-13, -6, zone C9. *TB11-4, zone B7. J2-h, zone B7. BCC. J9-h, zone C6. *TB8-6, zone C6. P7-22, zone D4.
13. RELEASE pushbutton (FCA): press and release. **RELEASE pushbutton (FCB): illuminates. RECEIVE ONLY pushbutton (FCB): extinguishes. RELEASE pushbutton (FCA): extinguishes.**	

Table 2-42. ROR Sweep and Video (FCA and FCB) (Fig. 3-22)

Check	Circuit identification points
NOTE **Insure that HIPIR A and B are not in RADIATE.**	
NOTE **If abnormal indications resulting from mode control functions are obtained in the checks below, refer to tables 2-39 and 2-40.**	
1a. BCC: power on. ROR: remote radiate. CALL pushbutton (FCA): press and release. RELEASE pushbutton (FCA): illuminates. Range/speed indicator (FCA): normal sweep with pedestal present. Range/speed indicator (FCA): video or noise present.	Perform subchecks d through h below.
b. RANGE KNOB (FCA) : rotate. Range/speed indicator (FCA): pedestal moves with knob.	Perform subchecks d through h below.
c. RANGE KNOB (FCA): press and hold. Range/speed indicator (FCA): sweep expands to short sweep.	Perform subchecks d through h below.
NOTE **Perform subchecks below only if an abnormal indication was obtained in a through c above. Otherwise, proceed to step 2.**	
d. TEST SWITCH (ROR sweep generator, BCC): FC A PED ZERO.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
e. RANGE CALIBRATE switch (ROR sweep generator, BCC): LONG. Range/speed indicator (FCA): normal sweep with 9 range marks and a pedestal present.	
RANGE CALIBRATE switch (ROR sweep generator, BCC): SHORT. Range/speed indicator (FCA): sweep expands to short sweep.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
f. TEST SWITCH (ROR sweep generator, BCC): NORMAL. ROR: local radiate Range/speed indicator (ROR): normal sweep and noise present.	Local ROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2.
g. ROR: remote radiate.	

Table 2-42. IROR Sweep and Video (FCA and FCB) (Fig. 3-22)-Continued

	Check	Circuit identification points
1h.	CALL pushbutton (FCA): press and release. **Range/speed indicator (FCA): normal sweep.**	IROR. *TB21-9, zone Al. J2-u, zone A2. IBCC. J9-u, zone A3. *TB7-14, zone A3. K1-9, -11, zone A5.
	Range/speed indicator (FCA): video or noise present.	IROR. *TB21-7, zone B1. J2-r, zone B2. IBCC. J9-r, zone B3. *TB7-16, zone B3. S1-6, -12, zone B6.
2a.	IBCC: power on. IROR: remote radiate. RELEASE pushbutton (FCA): press and release. CALL pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): illuminates. Range/speed indicator (FCB): normal sweep with pedestal present.** Range/speed indicator (FCB): noise or video present.	Perform subchecks d through f below.
b.	RANGE KNOB (FCB): rotate. **Range/speed indicator (FCB): pedestal moves with knob.**	Perform subchecks d through f below.
c.	RANGE KNOB (FCB): press in and hold. **Range/speed indicator (FCB): sweep expands to short sweep.**	Perform subchecks d through f below.
	NOTE **Perform subchecks below only if an abnormal indication was obtained in a through c above.**	
d.	TEST SWITCH (IROR sweep generator, IBCC): FCB RED ZERO. RANGE CALIBRATE switch (IROR sweep generator, IBCC): LONG. **Range/speed indicator (FCB): normal sweep with 9 range marks and a pedestal present.**	Local IBCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
e.	RANGE CALIBRATE switch (IROR sweep generator, IBCC): SHORT. **Range/speed indicator (FCB): sweep expands to short sweep.**	Local IBCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
f.	TEST switch (IROR sweep generator, IBCC): NORMAL.	

Table 2-43. IROR Detector Back Bias (FCA and FCB) (Fig. 3-23)

	Check	Circuit identification points
1.	IROR: local radiate. ANTENNA-LOAD switch (IROR): ANTENNA. DBB switch (IROR): ON. **RANGE indicator (IROR): noise peaks do not decrease in amplitude, but high-intensity noise decreases to base line.**	Local IROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2.
2a.	IBCC: power on. IHIPIR A and B: remote false radiate. IROR: remote radiate. CALL pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): illuminates.**	Refer to mode control checks (tables 2-39 and 2-40).
b.	MANUAL ELEVATION pushbutton (FCA): press and release. Position IHIPIR A in AZIMUTH and ELEVATION until **Range/speed indicator (FCA): normal sweep with ground clutter noise present.**	Refer to IROR video checks (table 2-42).
c.	DBB pushbutton (FCA): press and hold. **Range/speed indicator (FCA): the noise level increases.**	IBCC. *S12, zone C6. *TB21-6, zone C4. K13-9, -11, zone C4. J8-s, zone C2. IROR. J1-s, zone C2. *TB9-13, zone C1.
d.	DBB pushbutton (FCA): release. RELEASE pushbutton (FCA): press and release. CALL pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): illuminates.**	Refer to mode control checks (tables 2-39 and 2-40).
e.	MANUAL ELEVATION pushbutton (FCB): press and release. Position IHIPIR B in AZIMUTH and ELEVATION until **Range/speed indicator (FCB): normal sweep with ground clutter noise present.**	Refer to IROR video checks (table 2-42).
f.	DBB pushbutton (FCB): press and hold. **Range/speed indicator (FCB): the noise level increases.**	IBCC. P7-20, zone C5. *TB21-14, zone C4. K13-10, -11, zone C4.

Table 2-44. ROR Magnetron Tuning (FCA and FCB) (Fig. 3-23)

	Check	Circuit identification points
	NOTE **Insure that HIPIR A and B are not in RADIATE.**	
1.	ROR: local radiate. FREQUENCY switch (FCA): INCREASE and DE-CREASE. **FREQUENCY METER (FCA): indicates from -5 to +5 in 15 seconds or less.**	Local ROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2.
2a.	BCC: power on. ROR: remote radiate. CALL pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): illuminates.**	Refer to mode control checks (tables 2-39 and 2-40).
b.	FREQUENCY switch (FCA): INCREASE and DE-CREASE. **FREQUENCY METER (FCA): indicates from -5 to +5 in 15 seconds or less**.	BCC. *S11, zone B6. *TB21-7, -8, zone B4. K13-12, -13, zone C4. J8-t, -v, zone C2. ROR. J1-t, -v, zone C2. *TB9-11, -12, zone C1. J2-c, -d, -f, zone A2. BCC. J9-c, -d, -f, zone A2. *TB7-18, -19, -20, zone A3. *M4-D, -E, -C, zone A6. ROR. J2-M, -N, zone B2. BCC. J9-M, -N, zone B2. *TB8-1, -2, zone B3. *M4-A, -B, zone B6.
c.	RELEASE pushbutton (FCA) press and release. CALL pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): illuminates.**	Refer to mode control checks (tables 2-39 and 2-40).
d.	FREQUENCY switch (FCB): INCREASE and DE-CREASE. **FREQUENCY METER (FCB): indicates from --5 to +5 in 15 seconds or less**.	BCC. P7-17, -18, zone C5. *TB21-15, -16, zone C4. K13-12, -13, zone C4.

[1]Refer to appendix B for serial number effectivity.

*Table 2-45. Manual Range During Jamming (FCA and FCB) (Fig. 3-24) *(T)'*

	Check	Circuit identification points
1a.	BCC: power on.	
b.	ROR: remote radiate.	
c.	HIPIR A and B: remote false radiate.	
d.	Remove fuse F1 (LAMP DEL) from ROR electronic control amplifier (BCC).	
e.	NORMAL/SIMULATED TOJ switch (HIPIR A): press and hold to SIMULATED TOJ. **SPECIAL LOCK lamp (HIPIR A): illuminated.** **JAMMING lamp (FCA) and JAMMED label (battery status indicator): flashing.** **RELEASE pushbutton (FCA): illuminates.** **Refer to mode control checks (tables** **Range/speed indicator (FCA): ROR range display video appears.**	Refer to table 2-37*(T) or 2-37. l*(R)l. (HIPIR special lock). Refer to mode control checks (tables 2-39 and 2-40). Refer to ROR sweep and video checks (table 2-42).
f.	RANGE KNOB (FCA), rotate until pedestal is centered under center index mark on range/speed indicator (FCA).	
g.	RANGE KNOB (FCA): press and release. **RELEASE pushbutton (FCA): extinguishes within 8 seconds.** **JAMMING lamp (FCA) and JAMMED label (battery status indicator): illuminates.** **RANGE DIAL (HIPIR A): 40 KM within 10 seconds.**	Refer to mode control checks (tables 2-39 and 2-40). HIPIR. *TB4-8, zone B5. J2-r, zone B6. BCC. J1-r, zone B7. K19-2, zone B9. K5-l11, zone A10. *TB21-17, zone All. *R1-B, zone A14. *TB1-19, zone A16. K19-14, zone A17. *TB29-10, zone A17. J1-u, zone A18. HIPIR. J2-u, zone A19. *TB13-2, zone A20. *TB1-34, -36, zone C22.
	RANGE repeatback mark (FCA) appears at 40 km.	Refer to HIPIR range repeatback check (table 2-23).
h.	NORMAL/SIMULATED TOJ (HIPIR A): release.	

Table 2-45. Manual Range During Jamming (FCA and FCB) (Fig. 3-24)--Continued

Check	Circuit identification points
2a. NORMAL/SIMULATED TOJ switch (HIPIR B): press and hold to SIMULATED TOJ.	Refer to table 2-37 (HIPIR special lock).
SPECIAL LOCK lamp (HIPIR B): illuminated. **JAMMING lamp (FCB) and JAMMED label (battery status indicator): flashing.**	
RELEASE pushbutton (FCB): lights.	Refer to mode control checks (tables 2-39 and 2-40).
Range/speed indicator (FCB): ROR range display video appears.	Refer to ROR sweep and video checks (table 2-42).
b. RANGE KNOB (FCB), rotate until pedestal is centered under center index mark on range/speed indicator (FCB).	
c. RANGE KNOB (FCB): press and release.	
RELEASE pushbutton (FCB): goes off within 8 seconds.	Refer to mode control checks (tables 2-39 and 2-40).
JAMMING lamp (FCB) and JAMMED label (battery status indicator): lit.	
RANGE DIAL (HIPIR B): 40 KM within 10 seconds.	HIPIR. *TB4-8, zone B5. J2-r, zone D6. BCC. J3-r, zone B7. K24-2, zone C9. K6-12, zone C10. *TB21-19, zone C11. R1-B (FC B) (ref. zone A14). *TB4-19, zone B16. K24-14, zone B17. *TB29-12, zone B17. J3-u, zone B18. HIPIR. J2-u, zone A19. *TB13-2, zone A20. *TB1-34, -36, zone C22.
RANGE repeatback mark (FCB) appears at 40 KM.	Refer to HIPIR range repeatback check (table 2-23).
d. NORMAL/SIMULATED TOJ switch (HIPIR B): release	
e. Replace fuse F1 in ROR electronic control amplifier (BCC).	

Table 2-46. ROR Azimuth Antenna Positioning (FCA and FCB) (fig. 3-25)

Check	Circuit identification points
WARNING **Clear the ROR antenna area.**	
NOTE **Before performing these checks, perform the repeatback mark checks for FCA and FCB, tables 2-32 and 2-33.**	
1a. ROR: local standby. ROR: antenna operate. AZIMUTH handwheel: rotated cw and ccw. Antenna: follows handwheel smoothly in azimuth.	Local ROR fault. Refer to fault isolation procedures TM 9-1430-529-12-2.
b. TEST switch: dynamic. Antenna: slew's 700 mils cw and ccw in azimuth. Parallax computer indicators: move with the antenna. TEST switch: NORMAL.	Local ROR fault. Refer to fault isolation procedures TM 9-1430-529-12-2.
2a. BCC: power on. HIPIR A: remote false radiate. Ensure HIPIR B is not in radiate. ROR: remote radiate.	
NOTE **Ensure both FCA and FCB RELEASE pushbuttons are off before proceeding.**	
b. CALL pushbutton (FCA): press and release. RELEASE pushbutton (FCA): lights.	Refer to mode control checks (tables 2-39 and 2-40).

Table 2-46. IROR Azimuth Antenna Positioning (FCA and FCB) (Fig. 3-25) -Continued

Check	Circuit identification points
2 c. CURSOR HANDWHEEL (FCA): rotate cw and ccw. **IROR antenna follows IHIPIR antenna smoothly in azimuth.**	IBCC. K7-14, zone B5. K8-14, zone B5. J8-M, -N, zone B6. IROR. J1-M, -N, zone B9. *TB10-12, -13, zone B10. K21-11, zone B11. K22-12, zone B11. IHIPIR. *TB9-1, -2, zone A1. J2-g, -h, zone A2. IBCC. J1-g, h, zone A2. K14-11, -12, zone A3. J8-g, -h, zone B6. IROR. J1-g, -h, zone B9. TB10-9, -8, zone C10. J1-G, -Z, zone C10. IBCC. K7-11, -12, -13, zone A5. J8-m, -n, -p, zone A6. IROR. J1-m, -n, -p, zone A9. *TB10-14, -15, -16, zone A10. K21-12, -13, -14, zone All. IBCC. IBCC synchro BUS, zone B6. *TB20-16, -14, zone C6. J8-L, -K, zone C6. IROR. J1-K, -L, zone C9, B9. *TB10-10, -11, zone C10, B10. K23-14, -12, zone C11, B11. IBCC. T4, zone C5. TB21-3, zone C6. R1C-2, zone D9. *TB21-1, zone D6. K9-13, -14, zone C4. J8-u, zone C6. IROR. J1-u, zone C9. K2-14, zone D11.
d. BREAKLOCK pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): extinguishes**.	Refer to mode control checks (tables 2-39 and 2-40).

Table 2-46. IROR Azimuth Antenna Positioning (FCA and FCB) (Fig. 3-25)-Continued

Check	Circuit identification points
3a. IBCC: power on. IHIPIR B: remote false radiate. Insure IHIPIR A is not in radiate. IROR: remote radiate.	
NOTE **Insure both FCA and FCB RELEASE pushbuttons are extinguished before proceeding.**	
b. CALL pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): illuminates**.	Refer to mode control checks (tables 2-39 and 2-40).
c. CURSOR HANDWHEEL (FCB): rotate cw and ccw. **IROR antenna follows IHIPIR antenna smoothly in azimuth.**	IROR. J3-E, zone B1. *TB10-5, zone B1. J1-w, zone B2. IBCC. J8-w, zone C2. K13, zone B4. K7, zone B5. K9, zone D4. K14, zone B3. K8, zone C5. Check circuit points in 2c above for IHIPIR B.

Table 2-47. IROR Elevation Antenna Positioning (FCA and FCB) (Fig. 3-26)

Check	Circuit identification points
WARNING **Clear the IROR antenna area.**	
NOTE **Before performing these checks, perform IROR azimuth antenna positioning (FCA and FCB) checks (table 2-46) and IHIPIR manual elevation checks (table 2-33).**	
1a. IROR: local standby. IROR: antenna operate. ELEVATION handwheel (IROR): rotated cw and ccw. Antenna: follows handwheel smoothly in elevation.	Local IROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2.
b. TEST switch: dynamic. Antenna: slews 700 mils in elevation. Parallax comrn-puter indicators: move with the antenna. TEST switch: NORMAL.	Local IROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2.

Table 2-47. ROR Elevation Antenna Positioning (FCA and FCB) (Fig. 3-26)-Continued

	Check	Circuit identification points
2a.	BCC: power on. HIPIR A: remote false radiate. Insure HIPIR B is not in radiate. ROR: remote radiate.	
	NOTE **Insure that both FCA and FCB RELEASE pushbuttons are extinguished before proceeding.**	
b.	CALL pushbutton (FCA): press and release. RELEASE pushbutton (FCA) : illuminates.	Refer to mode control checks (tables 2-39 and 2-40).
c.	MANUAL pushbutton (FCA): press and release. MANUAL ELEVATION knob (FCA): rotate cw and ccw. **ROR antenna follows HIPIR antenna smoothly in elevation.**	HIPIR. *TB11-1, -2, zone B1. J2-i,-j, zone B1. BCC. J1-i, -j, zone B2. K-14-13, -14, zone C3. J8-i, -j, zone C4. ROR. J1-i, -j, zone C5. *TB10-7, -6, zone C5. BCC. K8-13, -12, -11, zone B3. J8-c, -d, -f, zone B4. ROR. J1-c, -d, -f, zone B5. *TB10-17, -18, -19, zone B5. K22-11, -13, -14, zone B6.
d.	BREAKLOCK pushbutton (FCA): press and release. **RELEASE pushbutton (FCA): extinguishes.**	Refer to mode control checks tables 2-39 and 2-40).
3a.	BCC: power on. HIPIR B: remote false radiate. Insure HIPIR A is not in radiate. ROR: remote radiate.	
	NOTE **Insure that both FCA and FCB RELEASE pushbuttons are extinguished before proceeding.**	
b.	CALL pushbutton (FCB): press and release. **RELEASE pushbutton (FCB): illuminates.**	Refer to mode control checks (tables 2-39 and 2-40).
c.	MANUAL pushbutton (FCB): press and release. MANUAL ELEVATION knob (FCB): rotate cw and ccw. **ROR antenna follows HIPIR antenna smoothly in elevation.**	Check circuit points in 2c above for HIPIR B.

[1]Refer to appendix B for serial number effectivity.

Table 2-48. ROR Automatic Range During Jamming (Fig. 3-27)

	Check	Circuit identification points
1.	HIPIR local false radiate. Lock switch (HIPIR): LOCK DISABLE. ICC: power on. ADP: operating. ADP operational program (ADP) : stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. **Register display lamps (ADP): extinguished in positions 3 and 4.** **Register display lamp 19 (ADP): extinguished in positions 10 and 11.** ADP operational program: start.	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
	NOTE **If an HIPIR fault is suspected while performing step 2 below, perform the manual ROR range during jamming checks in table 2-45.**	
2a.	HIPIR A and B: local false radiate. LOCK switch (HIPIR): LOCK HOLD. ICC: power on. ADP: operating. Operation program: start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. REGISTER DISPLAY switch (ADP): position 10. Lock switch (HIPIR A): NORMAL. HIPIR *(T)[1]: NORMAL/SIMULATED TOJ switch (HIPIR A): press and hold to SIMULATED TOJ. HIPIR *(R)[1]: set EXERCISE switch (HIPIR A) to position 22 (ML2). **Register display lamp 19 (ADP): illuminated.**	BCC. *TB7-6, zone A4. J23-37, zone A3. ICC J3-37, zone A2. *TB6-9, zone A2.
b.	REGISTER DISPLAY switch (ADP): position 3. (HIPIR A). **Register display lamp 22 or 23, and at least one of 16 through 20 (ADP): illuminated.** **RANGE DIAL (HIPIR A): indicates ADP designated range.** HIPIR *(T)': release NORMAL/SIMULATED TOJ switch (HIPIR B).	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3. ICC *TB14-11, zone B2. J3-2, zone B2. BCC. J23-2, zone B3. *TB2-7, zone B4. K19, zone B5. HIPIR. *TB4-8, zone B10. J2-r, zone B10.

Table 2-48. ROR Automatic Range During Jamming (Fig. 3-27)-Continued

Check	Circuit identification points
2b.-Continued.	BCC. J1-r, zone B9. J1-V, zone B6. K19-12, -3, zone B5. *TB25-20, zone B4. J23-39, zone B3. ICC. J3-39, zone B2. *TB6-4, zone B2. *TB20-1, zone A2. J3-42, zone A2. BCC. J23-42, zone A3. *TB25-1, zone A4. K19-8, -14, zone A5. *TB29-10, zone A8. J1-u, zone A9. HIPIR. J2-u, zone A10. TB13-2, zone A10
c. REGISTER DISPLAY switch (ADP): position 11. LOCK switch (HIPIR B): NORMAL. HIPIR: NORMAL/SIMULATED TOJ switch (HIPIR B): press and hold to SIMULATED TOJ. **Register display lamp 19 (ADP): lit**. REGISTER DISPLAY switch (ADP): position 4 (HIPIR B). **Register display lamp 22 or 23, and at least one of 16 through 20 (ADP): lit.** **RANGE DIAL (HIPIR B): indicates ADP designated range.** HIPIR: release NORMAL/SIMULATED TOJ switch (HIPIR B).	BCC. *TB7-7, zone C4. J20-15, zone C3. ICC. J4-15, zone C2. *TB12-9, zone C2. Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3. ICC. *TB24-6, zone D2. J4-2, zone D2. BCC. J20-2, zone D3. *TB5-8, zone D4. K24, zone D5. HIPIR. *TB4-8, zone B10. J2-r, zone B10. BCC. J3-r, zone C9. J3-V, zone C6. K24-12, -3, zone C5. *TB27-18, zone D4. J20-39, zone D3.

Table 2-48. ROR Automatic Range During Jamming (Fig. 3-27)-Continued

Check	Circuit identification points
2c.-Continued.	ICC. J4-39, zone D2. *TB12-4, zone D2. *TB23-5, zone C2. J4-42, zone C2. BCC. J20-42, zone C3. *TB26-20, zone C4. K25-8, -14, zone C5. *TB29-12, zone C8. J3-u, zone C9. HIPIR. J2-u, zone A10. TB13-2, zone A10

Table 2-49. Target In-Range (Fig. 3-28)

Check		Circuit identification points
	NOTE **Perform step 1 for ADP in-range designation, or step 2 for HIPIR in range designation.**	
	NOTE **Targets of opportunity known to be in-range must be available.**	
1*a*	ICC: power on. ADP: operating. Operational program (ADP) : stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press 'the CPU RESET pushbutton then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. REGISTER DISPLAY switch (ADP): position 9. **All register display lamps (ADP): off.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
b.	Operational program: start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. **Register display lamp 13 (in range FSA) (or lamp 14 for in range FSB) (ADP): lit.**	

Table 2-49. Target In-Range (Fig. 3-28)-Continued

Check	Circuit identification points
1 c. BCC: power on. Firing interlock assembly test switch (BCC) : ADP. HIPIR: local false radiate. Auto-manual switch (HIPIR): AUTO TRACK. Lock switch (HIPIR): LOCK HOLD. **LOCK label (BCC): illuminated**. **IN RANGE label (BCC): illuminated.**	Refer to HIPIR lock checks (table 2-24). ICC. *TB14-4, zone C2. J3-11, zone C2. BCC. J23-11, zone C4. *TB24-4, zone C4. S1-2B, -8, -5, zone BS. K4-12, -3, zone B8. S1-lC, -9, -12, zone B8. CR88, zone All. DS-1, DS2, zone A12.
2. HIPIR: local false radiate. HIPIR: antenna operate. BCC: power on.	

NOTE

Make certain that HIPIR antenna is set to approximately 70 mils in elevation, and that stowed synchro in the minimum elevation cutout chassis is set at 200 mils.

APPROACH-RECEDE switch (HIPIR range interlock computer): APPROACH. **IN-RANGE lamp (HIPIR): illuminated.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2*(T)' or TM 9-1430-533-12-4*(R)'.
Firing interlock assembly test switch (BCC): HPI. **IN RANGE label (status indicator): illuminated**.	HIPIR. A3J3-N, zone A3. BCC. J2-N, zone A4. *TB4-1, zone A4. K17-4, zone A5. K25-8* (J) 1, zone A5. S1-1C, -10, -12, zone B8. CR88, zone All. DS1, DS2, zone A12.

[1]Refer to appendix B for serial number effectivity.

Table 2-50. Fire Command (Fig. 3-29)-Continued

Check	Circuit identification points
NOTE **Perform steps 1 and 2 for automatic (ADP) issued fire commands, or step 3 for manually issued fire commands.** **WARNING** **Make certain that the LSCB is in SAFE, and the LCHR's are in local.**	
1a. ICC: power on. ADP: operating. Operational program (ADP) : stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. REGISTER DISPLAY switch (ADP): position 9 (ADP fire). **HPI A (or HPI B) FAULT lamps (ADP): extinguished.** **Register display lamps (ADP): all extinguished in position 9.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
b. Operational program (ADP): start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. Engage and lock on a target of opportunity. FIRE MODE switch (TCO): AUTO FIRE. **Register display lamp 21 (ADP fire FSA) or 22 (ADP fire FSB) (ADP): illuminated.** **Register display lamp 13 (in-range FSA) or lamp 14 (in range FSB) (ADP): illuminated.**	Refer to target in-range checks (table 2-49).
c. BCC: energized. Firing interlock assembly test switch (BCC) : TEST. Firing interlock assembly LAMP/AUTO FIRE TEST pushbutton (BCC) : press and hold. Press FIRE pushbutton. **Firing interlock assembly FIRE CIRCUIT O.K. lamp, and monitor panel MSL FIRED lamp (BCC): illuminated.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
d. LAMP/AUTO FIRE TEST pushbutton: release. **IN RANGE label (status indicator): illuminated.**	

Table 2-49. Target In-Range (Fig. 3-28)-Continued

	Check	Circuit identification points
2a.	ICC: power on. ADP: operating. LOCAL/REMOTE switch (ADP): REMOTE. IBCC: power on. Engage and lock on a target of opportunity. **IN R 4NGE label (status indicator): illuminates.**	IBCC. K8-12, -3, zone B5. K1-12, -2, zone B6. K2-11, -10, zone B6. K6, zone B7. K2-5, zone A6.
b.	Firing interlock assembly A test switch (IBCC): HPI. Fire (F) pushbutton (FCA): illuminates. DS1, zone A9.	K6-2, zone A7. CR51, zone A9.
c.	Firing interlock assembly A test switch (IBCC): ADP. **Fire (F) pushbutton (FCA): extinguishes.** **IN RANGE label (status indicator): illuminated.** **Register display lamp 9 (ADP fire): illuminated.**	ICC. *TB14-8, zone B1. J5-33, zone B2. IBCC. J21-33, zone B2. *TB24-9, zone B3. DS2, zone A3. K3-12, zone B4. K18-12, -3, zone C3. S1-3A, -1, -4, zone C4. K3-11, -10, zone C5. K1-7, -14, zone D6. Kll-9, -10, zone D3. S34* (J), fig. 3-20, zone B1. K1-3, zone B6. K2-10, zone B6. K6-12, -2, zone A7.
	FIRING label (status indicator): illuminated.	IBCC. K6-5, zone B7. K21-13, -5, zone All. CR96, zone A13. DS3, DS4, zones A14, B14.
	Missile fired FSA signal is furnished to ADP. **Register display lamp 17 (missile fired FSA): illuminated in position 10.**	IBCC. K6-8, zone B7. J2-15, zone D70. *TB24-8, zone D71. ICC. *TB6-11, zone D72.

WARNING

Make certain ILSCB is in SAFE and ILCHR is in local.

Table 2-50. Fire Command (Fig. 3-29)-Continued

	Check	Circuit identification points
3a.	IBCC: power on. FIRE MODE switch (TCO) panel: NORMAL. **IN RANGE label (IBCC status indicator): NORMAL.** **Fire (F) pushbutton (FCA): illuminates.**	Refer to target in-range checks (table 2-49). IBCC. K8-12, -2, zone CS. K1-2, zone C6. K2-1, -5, zones C6, A6. K6-2, zone A7. CR51, zone A9. DS1, zone A9.
b.	Fire (F) pushbutton (FCA): press and hold. **FIRE (F) pushbutton (FCA): extinguishes**.	IBCC. K2-3, zone A6. S22-4, zone B9. K6-1, -2, zones B7, A7.
	FIRING label (status indicator): illuminates.	IBCC. K6-5, zone B7. K21-1, -5, zones Bll, All. CR96, zone A13. DS3, DS4, zones A14, B14.

Table 2-51. Firing Sequence (Figs. 3-29 and 3-32)

Check	Circuit identification points
WARNING **Make certain umbilical cables are disconnected from missiles on ILCHR(s) being checked. Install shorting plugs into missiles, and then connect miniature missile simulators to umbilical plugs.** **NOTE** **All references to ILCHR's, ILSCB's, IHIPIR's, and FC's apply to fire section being checked.** **NOTE** **If ADP is providing lead angle designation for IHIPIR, perform step 1 below. Otherwise, proceed to step 2.**	
1a. ICC: power on. ADP: operating. Operational program (ADP): stop. Press the SINGLE INSTRUCTION pushbutton. Press the DTO MANUAL RESET pushbutton. Press the CPU RESET pushbutton then the DISPLAY ENABLE pushbutton.	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.

Table 2-51. Firing Sequence (Figs. 3-29 and 3-32)-Continued

Check	Circuit identification points
1a - -Continued. LOCAL/REMOTE switch (ADP): LOCAL. REGISTER DISPLAY switch (ADP): positions 1, 2, 3, and 4. **HPI A (or HPI B) FAULT lamps (ADP): extinguished.** **Register display lamps (ADP): all extinguished in position 1, 2, 3, or 4.**	
b. REGISTER DISPLAY switch (ADP): positions 10 and 11. **Register display lamps 17 and 20 (ADP): extinguished.**	
c. Operational program: start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. REGISTER DISPLAY switch (ADP): position 1. (IHIPIRA) or2 (IHIPIRB). **Register display lamps (ADP): at least one of 8 through 13 (azimuth lead angle) and at least one of 14 through 19 (elevation lead angle) illuminated.**	
2a. IBCC: energized. IHIPIR: local false radiate. IHIPIR: antenna operate. Antenna (IHIPIR): positioned 300 mils from ILCHR azimuth cutout area. Antenna (IHIPIR): positioned 200 mils elevation. ILCHR: operate. LOCAL/REMOTE switch (LCU) :REMOTE. HYD-PRESS switch (LCU) : ON. LAUNCHERS OPERATE/SAFE switches (ILSCB): OPERATE. FIRE SECTION STBY (FCA): press and release. **ILCHR goes to standby.** **MISSILE COUNT indicator (status indicator): displays 3.**	Refer to ILCHR energizing and controlchecks (table 2-5). Refer to missile present checks table 2-6).
b. ASSIGN LOW pushbutton (TCC): press and release. **ASSIGN LOW pushbutton (TCC): illuminates.** **ELEVATION LOW pushbutton and ASSIGN lamp (FCA): flash and illuminate respectively.**	Local IBCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
2c. ELEVATION LOW pushbutton (FCA): press and release. MANUAL SPEED pushbutton (FCA): press and release. SPEED control (FCA): adjust for 800 on TARGET SPEED meter. MANUAL RANGE pushbutton (FCA): press and release. Range rate control (FCA): adjust until IN RANGE label illuminates.	Refer to target in-range checks (table 2-49).

Table 2-51. Firing Sequence (Figs. 3-29 and 3-32)-Continued

Check	Circuit identification points
2--Continued. RESUME FIRE-CEASE FIRE switch (TCC): RESUME FIRE. **Fire (F) pushbutton illuminates.** Notify crew chief and the IHIPIR and ILCHR operators to stand by for firing countdown.	
d. Fire (F) pushbutton (FCA): press and release. **Fire (F) pushbutton (FCA): extinguishes.** **HANG FIRE label (FCA): starts to flash after 5 seconds.**	Refer to fire command checks (table 2-50). Refer to figure 3-32 for the following: ILCHR. J2-W, zone B3. ILSCB. J2-W, zone B4. J1-W, zone B5. IHIPIR. J4-W, zone B7. J3-Y, zone BS. IBCC. J2-Y, zone B8. *TB2-21, zone B9. K16-1, -7, zone B10. K5-1, -5, zone All. DS26, zone B12.
Missile present lamps (FCA): one of three extinguish	Refer to missile present checks (table 2-6) Refer to figure 3-29 for the following: IBCC. 549-13, zone C10. *TB3-9, zone C14. J2-s, zone C15. IHIPIR. J3-s, zone C16. J4-v, zone C17. ILSCB. J1-v, zone C19. J2-v, zone A21. ILCHR. J2-v, zone A22. J1-k, zone A23. P3-r, zone C24. *TB10-1, zone B26. K13-X2, zone B26. J3007-S, -T, zone B31. P3010A-C, -K, zone B38. DS2, DS1, zone B38.
Miniature missile simulator ARM and GYRO RIJNUP lamps (ILCHR): momentarily illuminate (see normal indication below).	

Check	Circuit identification points
2d-Continued. **LAUNCHER 1 (2 or 3) FAILED TO FIRE lamp (ILSCB): illuminates if ARM and GYRO RUNUP lamps (above indication) do not momentarily illuminate.** **ILCHR boom: moves clockwise and upward (lead angle).** **IBCC LEAD ANGLE and FIRING lamps (FSA) (status indicator): illuminate**.	Refer to figure 3-32 for the following: ILCHR. J2-X, zone A3. ILSCB. A1Kl-1, -8, zone A5. DS4, zone A5. Refer to figure 3-29 for the following: IHIPIR. TB13-2, zone B16. J4-*s*, zone B17. ILSCB. J1-*s*, zone B19. A6K4-1, -3, zones C20, A20. J2-*s*, zone A21. ILCHR. J2-*s*, zone A22. P3-*j*, zone A24. J1003-*j*, zone A25. J2-*i*, zone A28. ILSCB. J2-*i*, zone A40. CR23, zone A40. J1-*i*, zone D41. IHIPIR. J4-i, zone D46. RK-1, zone D58. Refer to figure 3-29 for the following: IBCC. J2-J, zone D67. *TB3-14, zone D68. DS30, zone C70. K1, zone D69. K6-8, zone B7. J2-15, zone D70. DS3, zone C71.
e. If ICC is operational, REGISTER DISPLAY switch (ADP) : position 10 or 11. **Register display lamps 17 and 20 (ADP): illuminate in position 10 or 11.**	IBCC. *TB24-8, zone D71. J23-26, zone D71. J23-14, zone D71. ICC. J3-26, zone D72. J3-14, zone D72. *TB6-11, -8, zone D72.

Table 2-51. Firing Sequence (Figs. 3-29 and 3-32)-Continued

Check	Circuit identification points
2f. REGISTER DISPLAY switch (ADP): position 1 or 2. **Launcher slews to ADP lead angles (azimuth and elevation) as displayed in ADP register.**	**NOTE** For azimuth lead angle use circuit identification points below. ICC. (if operational): *TB15-16, zone B41. J3-32, zone B42. IBCC. J23-32, zone B43. *TB24-12, zone B44. J1-F, zone B44. IHIPIR. J2-F, zone D45. P1-A, -B, -M, zone A51. B4, zone A53. J2-CC, -BB, -AA, zone A53. K1-4 and -3, -7 and -6, -10 and -9, zones A58, B58. J4-p, -m, -n, zone A60. ILSCB. J1-p, -m, -n, zone A62. J2-p, -m, -n, zone A63. ILCHR. J2-p, -m, -n, zone A64. B1, zone A69. **NOTE** For elevation lead angle, use circuit identification points below. ICC (if operational): *TB15-15, zone C42. J3-33, zone C42. IBCC. J23-33, zone B43. *TB24-13, zone C44. J1-E, zone C44. IHIPIR. J2-E, zone D45. P1-L, -K, -H, zone C51. B3, zone C53. J2-NN, -PP, -RR, zone C53. K2-13, -12, -11, zone C56. K1-19 and -18, -16 and -15, -13 and -12, zone C58. J4-c, -d, -f, zone B60. ILSCB. J1-c, -d, -f, zone B62. J2-c, - -f, zone B63.

Table 2-51. Firing Sequence (Figs. 3-29 and 3-32)-Continued

Check	Circuit identification points
2f-Continued.	
Miniature missile simulator INITIATE lamp (LCHR): momentarily lights.	LCHR. J2-c, -d, -f, zone B64. K8-12, -15, -18, zone B64. Shoot-around circuits, zone B68. B1, zone B69. LCHR. J1-b, zone B24. J1003-b, zone B25. J1014-X, zone B28. K55, zone B32. P1013-H, -I, zone A29. K55-8,-4, zone A33. P3010A-S, -T, zone A38. DS3, zone A38.
LCHR boom: returns to azimuth of HIPIR antenna (lead angle removed).	HIPIR. K1 (deenergized), zone D58. *TB13-5, -6, -7, zone A50. S1, S2, S3 azimuth, zone B57. K1-2, and -3, -5 and -6, -8, and -9, zones A58, B58.
LCHR: returns to standby.	Local LCHR fault. Refer to fault isolation procedures in TM 9-1440-531-12-2.

Table 2-52. Missile Frequency Command (Figs 3-30 and 3-38)

Check	Circuit identification points
WARNING Make certain umbilical cables are disconnected from missiles on LCHR being checked. Install shorting plugs into missiles.	
1. HIPIR: local false radiate. Transmitter panel no. 2 FREQUENCY COMMAND TEST switch (HIPIR): press and hold. Radar set group OUTPUT TEST switch (HIPIR): positions 1 through 4. **OUTPUT TEST lamp (HIPIR): lit with switch set to each position.** FREQUENCY COMMAND TEST switch (HIPIR): release. Radar set group OUTPUT TEST switch (HIPIR): positions 1 through 4.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.

Table 2-52. Missile Frequency Command (Figs. 3-30 and 3-38) - Continued

Check	Circuit identification points
1-Continued. **OUTPUT TEST lamp lights and goes off in accordance with frequency command table shown below. X's denote when lamp should light for given OUTPUT TEST and ASSIGNED FREQUENCY switch position. For example, if ASSIGNED FREQUENCY switch is set to position 13, OUTPUT TEST lamp should light with OUTPUT TEST switch set to positions 1 and 2, and go off with OUTPUT TEST switch set to positions 3 and 4.**	

OUTPUT TEST switch positions	ASSIGNED FREQUENCY switch positions														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	X		X		X		X		X		X		X		X
2	X	X			X	X			X	X			X	X	
3	X	X	X	X					X	X	X	X			
4	X	X	X	X	X	X	X	X							

2.	HIPIR: local false radiate. LCHR: local standby. LAUNCHERS SAFE/OPERATE switch (LSCB): OPERATE FREQ/ MSG CMD TEST switch (LSCB): set and hold to up position. **LAUNCHERS FREQ/MSG CMD TEST lamp (LSCB): lit.** **FREQ/MSG CMD TEST switch (LSCB): release.**	Refer to figure 3-38 for the following. LSCB. S8, zone D1. A6K3-4, zone D1. J1-a, zone D1. HIPIR J4-a, zone D2. J15-X, zone B6. K2-1, zone B9. Refer to figure 3-30 for the following. HIPIR. K2-3, 2, and -5,6, and -9,8, and -11, 12, zones B3, C3, D3. J4-L, -P, -S, -T, zones B6, C6, D6. LSCB. J1-L, -P, -S, -T, zones B7, C7. J2-L, -P, -S, -T, zone B9. LCHR. J2-L, -P, -S, -T, zone B9. J1-s, -h, -N, -R, zone B11. K28-1, -6, zone B15. K29-1, -5, zone B16. K30-1, -5, zone C15. K31-1, -6, zone D16.

Table 2-55. Missile Message Command (Figs 3-31 and 3-38)

Check	Circuit identification points
WARNING **Make certain that umbilical cables are disconnected from missiles on LCHR being checked. Install shorting plugs into missiles.**	
1a. ICC: power on. ADP: operating. Operational program (ADP): stop. Press SINGLE INSTRUCTION pushbutton. Press DTO MANUAL RESET pushbutton. Press CPU RESET pushbutton and then the DISPLAY ENABLE pushbutton. LOCAL/REMOTE switch (ADP): LOCAL. REGISTER DISPLAY switch (ADP): position 1 (HIPIR A) or 2 (HIPIR B). **HPI A (or HPI B) FAULT lamps (ADP): extinguished.**	Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
b. Operational program: start. Press the START/STEP/PULSE pushbutton twice. LOCAL/REMOTE switch (ADP): REMOTE. **Register display lamps 20 through 23 (missile message and autopilot) (ADP): extinguished.**	
2a. HIPIR: remote false radiate. BCC: power on. Firing interlock computer A (or B) test switch (BCC): ADP. LCHR: power on. LAUNCHERS SAFE/OPERATE switch (LSCB): OPERATE. **MISSILE MESSAGE A, B, and C and AUTOPILOT lamps (BCC maintenance monitor): extinguished.**	Refer to figure 3-31 for the following: ICC. *TB14-14, -15, -16, -17, zones A2, B2. J3-8, zone A2. J5-1, -2, -4, zones A2, B2. BCC. J23-8, zone A4. J21-1, -2, -4, zones A4, B4. *TB3-13, zone AS. *TB31-5, -3, zone B5. *TB13-21, zone B15. K3-12, -14, -13, zone A9. DS25, zone B11. DS26, zone B12. DS27, zone C11. DS28, zone C12. Refer to figure 3-38 for the following: LSCB. S8, zone D1. J1-a, zone D2. HIPIR. J4-a, zone D2. K4-1, zone D4.
b. FREQ/MSG CMD TEST switch (LSCB): set and hold to up position. **LEAD ANGLE lamp (BCC maintenance monitor panel): illuminated.**	

[1]Refer to appendix B for serial number effectively.

Table 2-53. Missile Message Command (Figs. 3-31 and 3-38)-Continued

Check	Circuit identification points
2b. --Continued:. **Register display lamps 20 through 23 (missile message and autopilot) (ADP): illuminated.**	Refer to figure 3-29 for the following: HIPIR. K4-5, -6, zone D59. J3-J, zone D60. BCC. J2J, zone D67. *TB3-14, zone D68. DS30, zone C70. BCC. J23-14, zone D71. ICC. J3-14, zone D72. TB6-8, zone D72. Local ADP fault. Refer to fault isolation procedures in TM 9-1430-1535-12-3.
MISSILE MESSAGE A, B, C, and AUTOPILOT lamps (BCC maintenance monitor panel): illuminated.	Refer to figure 3-31 for the following: ICC TB14-14, -15, -16, -17, zone A2, B2. J3-8, zone A2. J5-1, -2, -4, zone A2, B2. BCC. J23-8, zone A4. J21-1, -2, -4, zone A4, B4. *TB3-13, zone A5. *TB31-5, -3, zone A5. *TB13-21, zone B15. K3-12, -14, -13, zone A9, B9. DS25, zone Bl11. DS26, zone C12. DS27, zone C11. DS28, zone C12.
OUTPUT TEST INDICATOR lamp (HIPIR): illuminated for positions 5 through 8 of OUTPUT TEST INDICATOR switch.	BCC. *TB32-1*(R)l , -2, -3, zone A15. *TB13-21, zone B15. J2-H*(R)', -S, -v, zone A15. J1-S, zone B15. HIPIR. J3-H*(R)l , -S, -v, zone A16. J2-S, zone B16. Refer to figure 3-38 for the following: J1-EE, zone A3. K3-5,-6, zone C4. *TB9-5, zone C3. K3-1, zone C4. K6-6,-4, zone C5. J1l-c, zone C5. J1-C, zone A3. K6-2, -13, zone C5.

Table 2-53. Missile Message Command (Fig. 3-31 and 3-38)-Continued

Check	Circuit identification points
2b. -Continued. **LAUNCHERS MSG CMD TEST lamp (LSCB): lit.**	J1-b, zone C5. J1-e, zone B3. K6-8, -14, zone B5. J1-a, zone B5. Refer to figure 3-31 for the following: S4, zone B17. DS5, zone B17. HIPIR. J4-g, -V, -H, -h, zones A18, B18. LSCB. J1-g, -V, -H, -h, zones A19, B19. J2-h, -g, -H, -E, zone A21. LCHR. J2-h, -g, -H, -E, zone A21. J1003-e, -c, -v, -k, zone A22, B22. K24-1, -6, zone D27. K25-1, -5, zone C27. K26-1, -6, zone B27. K27-1, -5, zone A27. Refer to figure 3-38 for the following: J6, zone C14. J3-Z, zone C16. LSCB. J2-Z, zone B17. DS18, zone B18.

Table 2-54. Destroy Command (Fig. 3-33)

	Check	Circuit identification points
1a.	BCC: power on. Firing interlock assembly TEST-OPERATE switch: TEST. FC DESTROY pushbutton: press and hold. **DESTROY CIRCUIT OK lamp (FC): lights.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
b.	FC DESTROY pushbutton: release. TCC DESTROY pushbutton: press and hold. **DESTROY CIRCUIT OK lamp (FC): lights.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
c.	TCC DESTROY pushbutton: release. TCC CHANGE TARGETS pushbutton: press and hold. **DESTROY CIRCUIT OK lamp (FC): lights.** TCC CHANGE TARGETS pushbutton: release. Firing interlock assembly TEST-OPERATE switch: HPI or ADP.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.

Table 2-54. Destroy Command (Fig. 3-33) -Continued

	Check	Circuit identification points
2.	HIPIR: local radiate. Transmitter panel 3 DEGENERATION ALIGNMENT SELECTOR switch (HIPIR): CODING MONITOR. Control-indicator panel CODING switch (HIPIR): CODING OFF. **DEGENERATION ALIGNMENT MONITOR meter (HIPIR): indicates less than 2.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
3a.	BCC: power on. HIPIR: remote radiate. Transmitter panel 3 DEGENERATION ALIGNMENT SELECTOR switch (HIPIR): CODING MONITOR. Control-indicator panel CODING switch (HIPIR): CODING ON. S1, zone All. DESTROY pushbutton (FC): press and hold. **DEGENERATION ALIGNMENT MONITOR meter (HIPIR): indicates less than 2.**	BCC. *S20, zone A2. J2-1, zone A8. J4-5, zone A8. K10-1, -3, zone A10. *TB3-20, zone A13. J2-M, zone A13. HIPIR. J3-M, zone B14. K1-13, -12, zone B15. K2-5, zone A15 (no 5.4 vdc).
b.	DESTROY pushbutton (FC): release. TCC CHANGE TARGETS switch: press and hold. **DEGENERATION ALIGNMENT MONITOR meter (HIPIR): indicates less than 2.** TCC CHANGE TARGETS pushbutton: release.	BCC. *S9, zone B4. K15-1, -12, zone B8.

Table 2-55. Failure Indicators (Fig. 3-35)

Check	Circuit identification points
1. BCC: energized. IFF. energized. **IFF FAIL label (status indicator): off.**	ICC. K4, zone B5. J14-30, zone B6. BCC. J15-30, zone B7. K1, zone B9. DS5, DS6, zone B1l.
2. CWAR: energized. **ICWAR FAIL label (status indicator): off.**	CWAR. J1-24, zone A2. *TB2-10, zone A2. J2-H, zone A2. ICC. J6-H, zone A3. *TB6-12, zone A4. J7-H, zone A6.

Table 2-55. Failure Indicators (Fig. 3-35)-Continued

Check	Circuit identification points
2. --Continued.	BCC. J7-H, zone A7. *TB29-8, zone A7. K3, zone A9. DS1, DS2, zone All.
3. ADP: energized. LOCAL/REMOTE switch (ADP): REMOTE. **ADP FAIL label (status indicator): off.**	ICC. *TB20-3, zone C5. J7-J, zone C6. BCC. J7-J, zone C7. K2, zone C9. P1-8, zone C9. J8-c, zone C10. J6-c, zone C10. DS7, DS8, zone C11.

Table 2-56. PAR Test Mode (Fig. 3-36)

Check	Circuit identification points
BCC: energized. PAR: standby. TEST SIGNAL switch (PAR): any position except OFF. **PAR set control TEST lamp (BCC): flashing**	PAR. S14D-C, zone A2. P24-63, zone A3. J2-z, -M, zone A3. BCC. J5-Z, zone A4. *TB12-21, zone A4. DS3, zone A6.

Table 2-57. PAR Test Target (Fig. 3-36)

Check	Circuit identification points
BCC: energized. PAR: standby. Press TEST TARGET indicator-switch (TCA) panel. **DSP test target starts at 75 +5 km, 40 mils after start of sector, then flies radial course approximately 0.75 km/scan to 10 to 20 km and resets to start.**	BCC. S1B-NO, zone C1. J10-Y, zone C2. J2-14, zone C3. K4-8, -3, zone C4. *TB10-8, zone C. *TB10-8, zone C5. J5-g, zone C5. PAR. J2-g, zone C5. J1-F, zone C6.

Table 2-58. BCC- HIPIR Confidence Test (Fig. 3-37)

Check	Circuit identification points
CAUTION **Ensure LCHR is not in activate.**	
1. BCC: power on. HIPIR test pushbutton (FC): press and release. **HIPIR test pushbutton (FC): flashes. ILLUM FAIL label (FC): flashes.** HIPIR test pushbutton: press and release.	BCC. K23-4, -6, zone Al. S31, zone A2. DS1, zone B2. K22-12, -2, zone A4. D517, zone A3 DS17, zone A3.
2. HIPIR: local radiate. HIPIR: antenna operate. AUTO-MANUAL switch (HIPIR): AUTO TRACK Lock switch (HIPIR): NORMAL. Servo control unit RADAR SYSTEM TEST TEST/GOOD indicator-switch: press for TEST indication. **TEST label (HIPIR) lights immediately.** **GOOD label (HIPIR) lights within 60 seconds and TEST label remains lit.**	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
3. BCC: power on. HIPIR: remote radiate. HIPIR: antenna operate. BCC: ELEVATION MANUAL (FC): press and release. HIPIR test pushbutton (FC): press and release. **HIPIR test pushbutton (FC): flashes. ILLUM FAIL label (FC): goes off within 60 seconds.** HIPIR test pushbutton (FC): press and release.	BCC. S31, zone A2. DS1, zone B2. DS17, zone A3. J2-6, zone B3. K17- 1, -14, -8, zone B4. *TB7-21, zone B6. J1-T, zone B6. HIPIR J2-T, zone C7. *TB7-5, zone C7. K6-1, -3, -8, zone C9. *TB7-4, zone A10. *TB12-7, zone A10. K6-1, -7, -4, zone A11. J3-N, zone A12. BCC. J2-N, zone A13. *TB4-1, zone A14. K17-13, -5, zone B4. K22-1, zone B4.

Table 2-59. Telephone Communications (Fig. 3-40)

Check	Circuit identification points
1a. TCO and TCA bus switches (TCO/TCA communications unit): position 1 (blue). **TCO and TCA headsets: communication is established between operators.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526--12-2.
b. TCO and TCA RING RTRY pushbuttons: in turn, momentarily press. **TCO and TCA headsets: audible tone momentarily heard as each RING pushbutton is pressed.**	
c. CWTDC bus switch (TCO/TCA communications unit): set to off (ccw) position. CWTDC communications unit RING switch (CWTDC): momentarily set to RING. **TCO/TCA communications unit: CWTDC lamp lit, audible buzzer activated, and audible tone heard in TCO and TCA headsets.**	
d. CWTDC bus switch: position 1 (blue). **Ringing indications of step c cease.** **TCO RING BTRY pushbutton: momentarily press.** **CWTDC communications unit audible buzzer: momentarily activated.** **CWTDC and TCO headsets: communication established between operators.**	
e. Repeat steps c and d for FCA and FCB communications units, substituting FCO A and FCO B bus switches (TCO/TCA communications unit).	
2a. CWAR communications unit (CWAR): energized. BCC: energized. TCO bus switch (TCO/TCA communications unit): position 1 (blue). ICWAR bus switch (TCO/TCA communications unit): off position (ccw). CWAR communications unit RING switch (CWAR): momentarily set to RING. **ICWAR lamp (TCO/TCA communications unit): continuously lit.**	Local CWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-4 CWAR. J2-J, -K, zone D65. J2-W, -V, zone D64. ICC. J6-W, -V, zone D63. J7-W, -V, zone D62. BCC. J7-W, -V, zone B42. *TB7-12, -13, zone B41. K1, zone B40. J1-B, zone A38 (12 vdc B).

Table 2-59. Telephone Communications (Fig. 3-40)-Continued

Check	Circuit identification points
2a. -Continued.	
	K1-1, -3, zone B40. K2, zone B39. K2-6, -1, zone B39. S14-4, -B, zone B37. K1-3, -1, zone A38. P6-B, zone A38. J1-J, zone A41 (28 vdc). K2-9, -4, zone A39. DS8, zone B38.
Audible buzzer (TCO/TCA communications unit): activated.	BCC. K2-8, -3, zone A39. DS1, zone B38.
TCO headset: audible tone continuously heard.	
b. ICWAR bus switch: position 1 (blue). **Ringing indications of step a cease.**	BCC. K2-7, -2, zone B39. K1-1, -3, -4, zones A37, B37.
c. TCO RING pushbutton (TCO/TCA communications unit): press and release.	BCC. S14-5, -B, zone B37. K2, zone B39 (deenergized).
Audible buzzer and headset tone (CWAR communications unit): momentarily activated.	BCC. S1-2, zone A24. *TB7-12, zone B41 J7-W, zone B42. S1-3, zone A24. S6-1, zone B22. S14-A, zone C38. TB7-13, zone B41. J7-V, zone B42.
Voice communications: established between TCO and CWAR.	Local CWAR fault. Refer to fault isolation procedures in TM 9-1430-1528-12-4.
3a. PAR communications unit (PAR): energized. BCC: energized. TCO bus switch: position 1 (blue). PAR bus switch (TCO/TCA communications unit): off (ccw) position. PAR communications unit RING switch (PAR): momentarily set to RING.	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
PAR lamp (TCO/TCA communications unit): continuously lit.	PAR. J2-i, zone A65.
	BCC. J5-i, zone B29. *TB20-19, -20, zones A29, B29. S12-4, -B, zone A25. DS6, zone B26.
Audible buzzer: continuously activated.	BCC. P6-C, zone A27. DS1, zone B38.

Table 2-59. Telephone Communications (Fig. 3-40)-Continued

Check	Circuit identification points
3a. -Continued.	
TCO headset: audible tone is continuously heard.	BCC. P6-D, zone A27. K1, zone B37.
b. PAR bus selector: position 1 (blue). **Ringing indications of step a cease.**	BCC. S12-5, -B, zone A25.
c. TCO RING pushbutton: press and release.	BCC. S1-2, zone A24.
Audible buzzer and headset tone (PAR communications unit): momentarily activated.	*TB20-19, zone B29. J5-i, zone B29.
Voice communications: established between TCO and PAR.	S1-3, zone A24. S12-A, zone B26. *TB20-20, zone A29. J5-i, zone B29.
	Local PAR fault. Refer to fault isolation procedures in TM 9-1430-1534-12-2.
4a. HIPIR communications unit (HIPIR A): energized. BCC: energized. TCO bus switch: position 1 (blue). FIRE SECT A bus switch (TCO/TCA communications unit): off (ccw) position. HIPIR communications unit RING switch (HIPIR A): momentarily set to RING.	Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
FIRE SECT A lamp (TCO/TCA communications unit): continuously lit.	HIPIR. J2-W, -U, zone B49.
	BCC. J1-W, -U, zone D48. *TB22-2, -1, zone D47. S9-4, -B, zone D44. DS3, zone D44.
Audible buzzer: continuously activated.	BCC. P9-C, zone C45. DS1, zone B38.
TCO headset: audible tone continuously heard.	BCC. P9-D, zone C45. K1, zone B37.
b. FIRE SECT A bus switch: position 1 (blue). **Ringing indications of step a cease.**	BCC. S9-5, -B, zone D44.

Table 2-59. Telephone Communications (Fig. 3-40)-Continued

Check	Circuit identification points
4c. TCO RING BTRY pushbutton: press and release. **Audible buzzer and headset tone (HIPIR A communications unit): momentarily activated.** **Voice communications: established between TCO and HIPIR A.**	BCC. S1-2, zone A24. *TB22-2, zone D47. J1-U, zone D47. S1-3, zone A24. S6-1, zone B21. S9-A, zone D44. *TB22-1, zone D47. J5-i, zone B29. Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
d. LSCB A communications unit (LSCB A): energized. LSCB A communications unit RING switch: momentarily set to RING. **FIRE SECT A lamp: momentarily lights.** **Audible buzzer: momentarily activates.** **TCO headset: audible tone is heard momentarily.**	Local LSCB fault. Refer to fault isolation procedures in TM 9-1440-531-12-2. LSCB A. J1-w, -t, zone B52. HIPIR A. J4-w, -t, zone B51. J2-W, -U, zones A49, B49. Local LSCB fault. Refer to fault isolation procedures in TM 9-1440-531-12-2.
e. TCO RING BTRY pushbutton: press and release. **Audible buzzer and headset tone (LSCB A): momentarily activated.** **Voice communications are established between TCO and LSCB.**	Local LCHR fault. Refer to fault isolation procedures in TM 9-1440-531-12-2. LCHR A (no. 1): J2-B, -C, zone A56. LSCB J2-B, -C, zone A54. J1-w, -t, zone B52. Local LCHR fault. Refer to fault isolation procedures in TM 9-1440-531-12-2.
f. LCHR A (no. 1) communications unit (LCHR A (no. 1)): energized. LCHR no. 1 A communications unit RING switch: momentarily set to RING. **FIRE SECT A lamp: momentarily lights.** **Audible buzzer: momentarily activates.** **TCO headset: audible tone is heard momentarily.**	
g. TCO RING BTRY pushbutton: press and release. **Audible buzzer and headset tone (LCHR A no. 1): momentarily activated.** **Voice communications are established between TCO and LCHR A (no. 1).**	
5a. ROR communications unit (ROR): energized. BCC: energized. TCO bus switch: position 1 (blue). ROR bus switch (TCO/TCA communications unit): off (ccw) position. ROR communications unit RING switch (ROR): momentarily set to RING.	

Table 2-59. Telephone Communications (Fig. 3-40)-Continued

Check	Circuit identification points
*5a-*Continued. **ROR lamp (TCO/TCA communications unit): continuously lit.**	Local ROR fault. Refer to fault isolation procedures in TM 9-1430-529-12-2. ROR. J1-r, zone A62. BCC. J8-r, zone C29. *TB7-11, -10, zone C29. S13-4, -B, zone C25. DS7, zone C26.
Audible buzzer: continuously activated.	BCC. P5-C, zone C27. DS1, zone B38.
TCO headset: audible tone continuously heard.	BCC. P5-D, zone C27. K1, zone B37.
b. ROR bus switch: position 1 (blue). **Ringing indications of step a cease.**	BCC. S13-5, -B, zone C25.
c. TCO RING BTRY pushbutton: press and release. **Audible buzzer and headset tone (ROR communications unit): momentarily activated.** **Voice communications are established between TCO and ROR.**	BCC. S1-2, zone A23. *TB7-11, zone C29. J8-r, zone C29. S1-3 zone A23 S6-1, zone A22. S13-A, zone C26. *TB7-11, -10, zone C29. J8-r, zone C29. Local ROR fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
6a. ICC communications unit (ICC): energized. BCC: energized. TCO bus switch: position 1 (blue). ICC bus switch (TCO/TCA communications unit): off (ccw) position. ICC communications unit RING switch (ICC): momentarily set to RING. **ICC lamp (TCO/TCA communications unit): continuously lit.**	Local ICC fault. Refer to fault isolation procedures in TM 9-1430-1535-12-2. ICC. J12-4, -24, zone C62. I BCC. J13-4, -24, zone A48. *TB23-14, -13, zone A47. S16-4, -B, zone A44. DS10, zone B44.
J12-4, -24, zone C56.	

Table 2-59. Telephone Communications (Fig. 3-40)-Continued

Check	Circuit identification points
6a-Continued.	
Audible buzzer: continuously activated.	BCC. P2-C, zone A45. DS1, zone B38.
TCO headset: audible tone heard continuously.	BCC. P2-D, zone A45. K1, zone B37.
b. ICC bus switch: position 1 (blue). **Ringing indications of step a cease.**	BCC. S16-5, -B, zone A44.
c. TCO RING BTRY pushbutton: press and release. **Audible buzzer and headset tone (ICC communications unit) : momentarily activated.** **Voice communications are established between TCO and ICC.**	BCC. S1-2, zone B23. *TB23-14, zone A47. J13-4, zone A48. S1-3, zone A24. S16-A, zone B44. *TB23-13, zone A47. J13-24, zone A47. Local ICC fault. Refer to fault isolation procedures in TM 9-1430-1535-12-2.
7a. IFF communications unit (ICC): energized. BCC: energized. TCO bus switch: position 1 (blue). IFF bus switch (TCO/TCA communications unit): off (ccw) position. IFF communications unit RING switch (ICC): momentarily set to RING. **ICC lamp (TCO/TCA communications unit): continuously lit.**	Local IFF fault. Refer to fault isolation procedures in TM 9-1430-1535-12-2. ICC. J12-22, -1, zone B62. BCC. J13-22, -1, zone C42. *TB23-15, -16, zone C41. S15-4, zone C37. DS9, zone D38.
Audible buzzer: continuously activated.	BCC. P3-C, zone C39. DS1, zone B38.
TCO headset: audible tone heard continuously.	BCC. P3-D, zone C39. K1, zone B37.
b. IFF bus switch: position 1 (blue). **Ringing indications of step a cease.**	BCC. S15-5, -B, zone C37.

Table 2-59. Telephone Communications (Fig. 3-40)-Continued

Check	Circuit identification points
7c. TCO RING BTRY pushbutton: press and release. **Audible buzzer and headset tone (IFF communications unit): momentarily activated.**	BCC. S12-5, -B, zone A25. *TB23-15, zone C41. J13-22, zone C42. S1-3, zone A24. S15-A, zone D38. *TB23-16, zone C41. J13-1, zone C42. Local IFF fault. Refer to fault isolation procedures in TM 9-1430-1535-12-2.

Table 2-60. Radio Communications (Fig. 3-41)

Check	Circuit identification points
1. BCC: energized. TCO and TCA bus switches (TCO/TCA communications unit): position 1 (blue). **TCO and TCA headsets: communications are established between the operators.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
2a. ICC: energized. BCC: energized. Radio communications (ICC) : prepare primary mode HOT and IRR lines for remote BCC operation. **HOT and IRR PRIM lamps: light.**	ICC. J12-45, -46, zone A6. S4C-9, -10, zone B3. DS1, zone B5. S3C-5, -6 zone C3. DS1, zone C5.
b. TCO VOL L control (TCO/TCA communications unit): adjust clockwise. **TCO headset: AADCP hot line communications are present.**	BCC. J13-45, -46, zone A14. *TB16-13, -14, zone A14. T2, zone A17. J3-J, zone A19. R1, zone A19. J3-F, zone A21. TCO headset, zone A23.
c. TCO bus switch (TCO/TCA communications unit): position HOT. **TCO: hot line communications between TCO and AADCP are established.**	Refer to figure 3-40 for the following: BCC. S6-A, -11, zone B21. Refer to figure 3-41 for the following. T1, zone C17. *TB16-6, -7, zone C22, I ICC. *TB11-12, -11, zone A24. S4C-1, -2, zone A97. S4B-9, -10, zone A97. K2-2, -8, zone D99. K2-6, -4, zone D99. J1A-31, -34, zone D100. J196-37, -38, zone D47.

Table 2-60. Radio Communications (Fig. 3-41)-Continued

Check	Circuit identification points
2*d.* TCA bus switch (TCO TCA communications unit): position HOT.	ICC. J196-36, zone A2. J196-35, zone B2. S4B-1, -2, zone B3. S4B-5, -6, zone A3. *TB15-2, -3, zone AS.
TCA VOL L control (TCO/TCA communications unit): adjust clockwise.	BCC. J13-45, -46, zone A14. *TB16-13, -14, zone A14. T2, zone A17. S20-B, -2, zone B18. J3-J, zone B19. R3, zone B19. J3-F, zone B21. TCA headset, zone B23.
TCA headset: AADCP hot line communications are present.	Refer to figure 3-40 for the following: BCC. S20-A, -2, zone C21. Refer to figure 3-41 for the following:
TCA: hot line communications between TCA and AADCP are established.	
e. HOT/RING XMIT switch: press and release. BCC.	S5, zone C21.
Hot line: rings at AADCP.	K2-8, -3, zone C20.
Request hot line ring from AADCP.	DS14, zone C20.
HOT CALL lamp: lights.	
f. TCA bus switch (TCO/TCA communications unit): position IRR.	ICC. J196-40, zone B2. J196-39, zone B2. S3B-5, -6, zone C3. S3B-1, -2, zone C3. *TB15-6, -7, zone B5.
TCA headset: AADCP IRR communications are present.	BCC. J21-45, -46, zone B14. *TB17-14, -15, zone B14. T4, zone B17. S20-A, -1, zone B18.
TCA: IRR communications between TCA and AADCP are established.	Refer to figure 3-40 for the following. BCC. S20-A, -1, zone C21. Refer to figure 3-41 for the following. BCC. T3, zone C17. *TB16-8, -9, zone C22.

Table 2-60. Radio Communications (Fig. 3-41)-Continued

Check	Circuit identification points
2f. -Continued.	ICC. *TB11-15, -16, zone C24. S3B-9, -10, zone C97. S3C-1, -2, zone C97. K1-2, -8, zone C99. K1-6, -4, zone C99. J1A-46, zone C100. J1A-43, zone C100.
g. IRR/RING XMIT switch: press and release. BCC.	S21, zone D21.
IRR rings at AADCP.	
Request IRR ring from AADCP.	BCC. K3-3, -8, zone D20. DS16, zone D20.
IRR CALL lamp: lights.	
h. Radio communications (ICC): prepare secondary mode HOT SEC and IRR SEC lines for operation.	ICC. S4C-9, -11, zone B3.
HOT and IRR SEC lamps (ICC): light.	DS1, zone B5.
HOT and IRR SEC MODE lamps (BCC): light.	SC-5, -7, zone C3. DS1, zone C5.
	ICC. J12-41, zone C6. J12-26, zone C6. *TB22-10, zone D14. *TB22-11, zone D14. DS17, zone D16. DS18, zone D16.
i. TCO bus switch (TCO/TCA communications unit): position HOT.	ICC. S4C-1, -3, zone A97.
TCO HOT/RING XMIT switch: press and hold.	S4B-9, -11, zone A97. J1-AV, -AW, zone C101. Switchboard line jack no. 7, zone C102. S4B-7, -5, zone A3. S4B-3, -1, zone B3.
TCO: HOT SEC line communications between TCO and AADCP are established.	
j. TCO HOT/RING XMIT switch: release.	
k. TCA bus switch (TCO/TCA communications unit): position IRR.	ICC. S3B-9, -11, zone C97.
TCA IRR/RING XMIT switch: press and hold.	S3C-1, -3, zone C97. J21-AF, zone D101. J21-AH, zone D101. Switchboard line jack no. 8, zone D102. S3B-1, -3, zone C3. S3B-5, -7, zone C3.
TCA: IRR SEC line communications between TCA and AADCP are established.	
l. TCA IRR/RING XMIT switch: release.	

Table 2-60. Radio Communications (Fig. 3-41)-Continued

Check	Circuit identification points
3a. ICC:power on. Radio communications (ICC): energize radio set group AN/VRC-47 for BCC remote operation. BCC: energized. TCO and ICC bus switches: position HOT. TCO TALK switch: press to on (lit) position. RADIO XMT pushbutton (TCO/TCA communications unit): press and hold. **Radio transmitter (ICC): keyed on.**	Refer to figure 3-40 for the following: BCC. *TB23-14, -13, zones A47, B47. J13-4, -24, zones A47, B47. ICC. J12-4, -24, zone C62.
b. RADIO XMT pushbutton: release. **TCO: communications are established over the onboard communications station.**	BCC. S16-A, zone B44. *TB23-14, -13, zones A47, B47.

Table 2-61. HIPIR EMCON/Forced Silent (Fig. 3-19.3)

Check	Circuit identification points
WARNING **Clear the HIPIR antenna area.**	
1a. BCC: power on. HIPIR: remote false radiate. TAS control unit CAGED indicator-switch (FC): press. ELEVATION MANUAL pushbutton (FC): press. **Range/speed indicator (FC): displays spectrum analyzer sweep.**	BCC. S9-2, -4, zone B9. J1-24, zone B10. K26-1, -8, -3, zone A11, B11. CR49, zone A11. J3-25, zone A12. J8-22, zone A12. *TB2-1, zone B14. J1-q, zone B14. HIPIR. J2-q, zone B15. *TB12-5, zone B15. J3-R, zone B16. K7-3, -2, zone B17. K8-13, -2, zone D23 (28vdc). *TB11-13, zone C24. J3-H, zone B29. Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2. BCC. J2-H, zone B29. I *TB32-1, zone B30. *TB1-10, zone B32. K3-1, zone B34. Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.

Table 2-61. HIPIR EMCON/Forced Silent (Fig. 3-19.3)

Check	Circuit identification points
1b. TAS control unit EMCON/FORCED SILENT indicator-switch (FC): press. **Range/speed indicator (FC): sweep disappears**.	BCC. S8-6, -8, zone A3. P2-FF, zone A4. *TB23-6, zone A4. J6-H, zone A5. HIPIR. J8-H, zone A15. P3-Z, zone A16. K7-5, -6, zone A17. K8-1, zone A17. K8-2, zone D24 (O vdc). *TB11-13, zone C24. BCC. *TB32-1, zone B30 (O vdc). Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
c. BREAKLOCK pushbutton (FC): press. **TAS control unit (FC): EMCON label lights.** **Range/speed indicator (FC): displays spectrum analyzer sweep.**	Local BCC/TAS fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2 or TM 9-1430-1536-13.
d. KILL pushbutton (FC): press. **Range/speed indicator (FC): sweep disappears**.	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2.
e. ELEVATION LOW pushbutton (FC): press. **HIPIR antenna: box searches.** **Range/speed indicator (FC): displays spectrum analyzer sweep.**	Refer to table 2-35. (HIPIR elevation search). Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.
f. KILL pushbutton (FC): press. **HIPIR antenna: stops searching.** **Range/speed indicator (FC): sweep disappears.**	Local BCC fault. Refer to fault isolation procedures in TM 9-1430-1526-12-2. Local HIPIR fault. Refer to fault isolation procedures in TM 9-1430-1533-12-2-2.

Table 2-62. ADCP Data Link (Fig. 3-34)

Check	Circuit identification points
1. BCC: energized. Inform ADCP that a pointer message will be transmitted. ADCP DATA LINK FAIL label (status indicator): off. TCC scope: position tracking lever hook symbol (O) at center of scope. ADCP POINTER INITIATE indicator-switch: press and hold. **Tracking lever feedback symbol (+) appears at center of scope (TCC).** **ADCP confirms that the pointer symbol indicates the battery site.**	BCC. A10S1-B, zone B3. J8-, zone B3. J2-5, zone C3.
2. ADCP POINTER INITIATE indicator-switch (tracking lever designate panel): release. **Tracking lever feedback symbol disappears.**	
3. Request ADCP to transmit pointer messages with IAFU site coordinates. **ADCP pointer symbol (+) is displayed at center of scope.**	
4. ADCP POINTER CLEAR (tracking lever designate panel): press and release. **ADCP pointer symbol disappears.**	BCC. A9S1-B, zone B2. JS-u, zone B2. J2-1, zone C2.

Table 2-63. ADP Loop Test (Fig. 3-35)

Check	Circuit identification points
1. BCC: energized. ADP LOOP TEST indicator-switch (TCC): press and hold. **TCC scope: all ADP symbols are displayed**. 2. ADP LOOP TEST indicator-switch (TCC): release. **TCC scope: ADP symbols disappear.**	BCC. S26, zone D9. J8-N, zone D10. J6-N, zone D10.

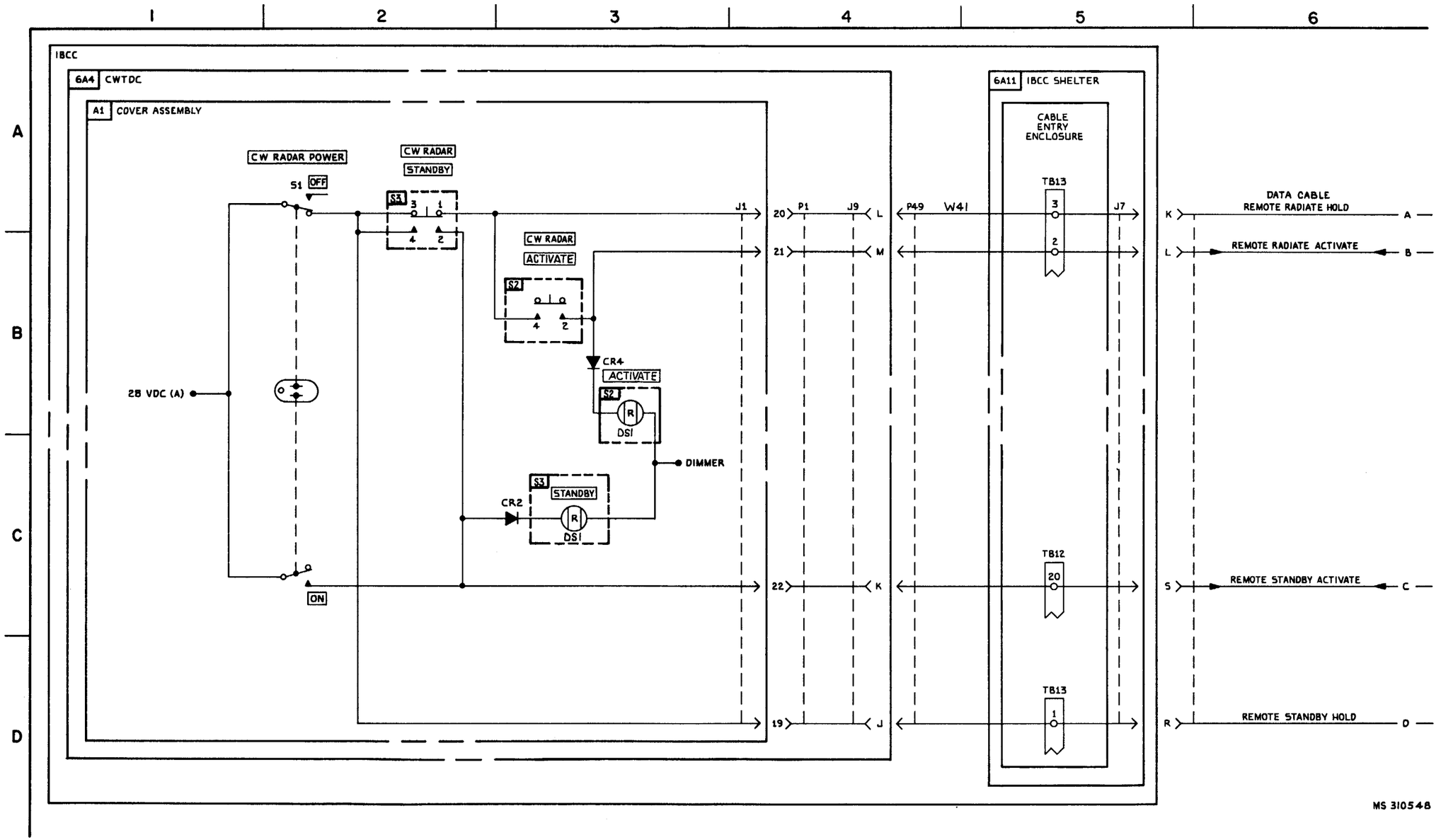

FIGURE 3-1. ICWAR ENERGIZING AND CONTROL--SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).

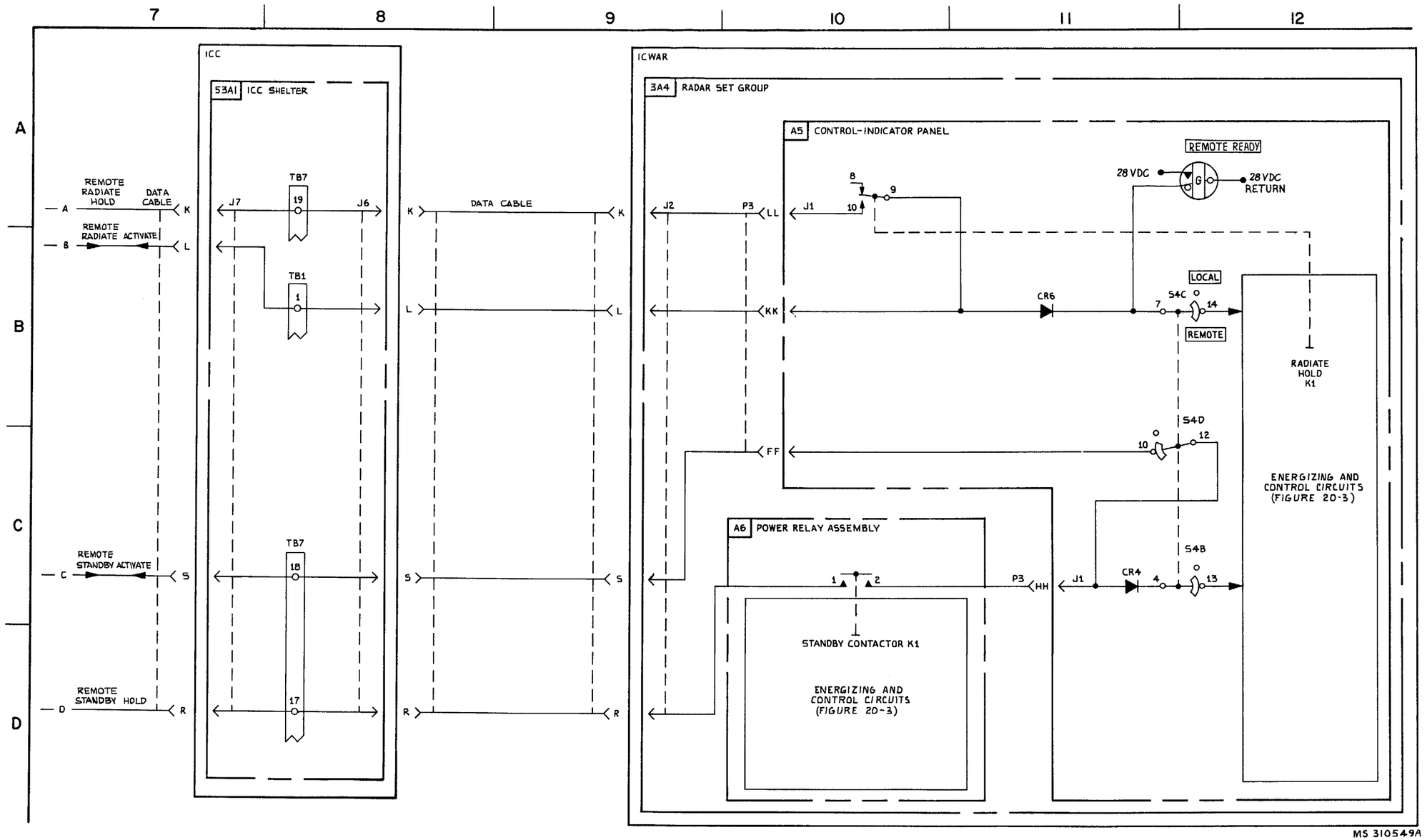

FIGURE 3-1. ICWAR ENERGIZING AND CONTROL-5YSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).

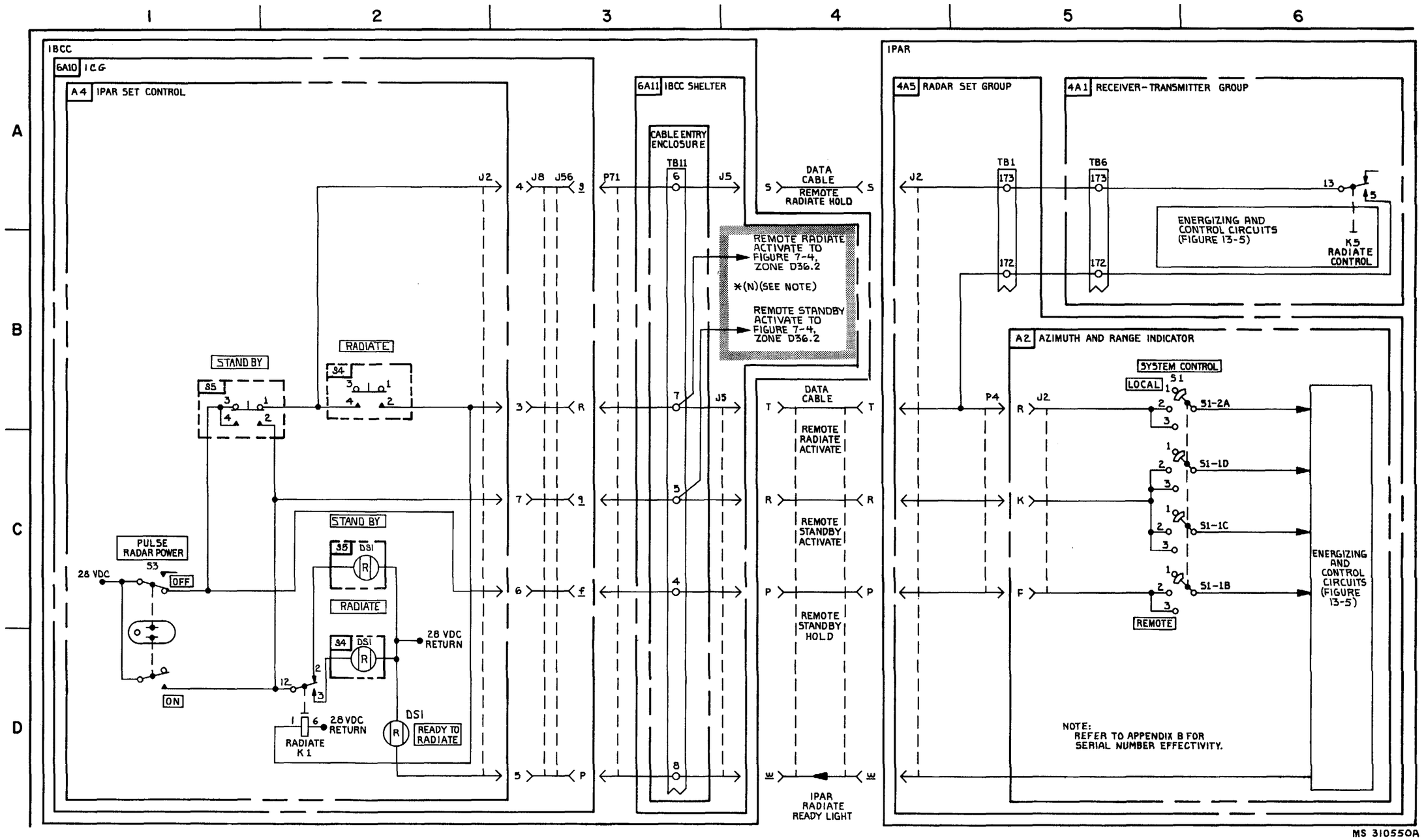

FIGURE 3-2. IPAR ENERGIZING AND CONTROL-SYSTEM FUNCTIONAL DIAGRAM.

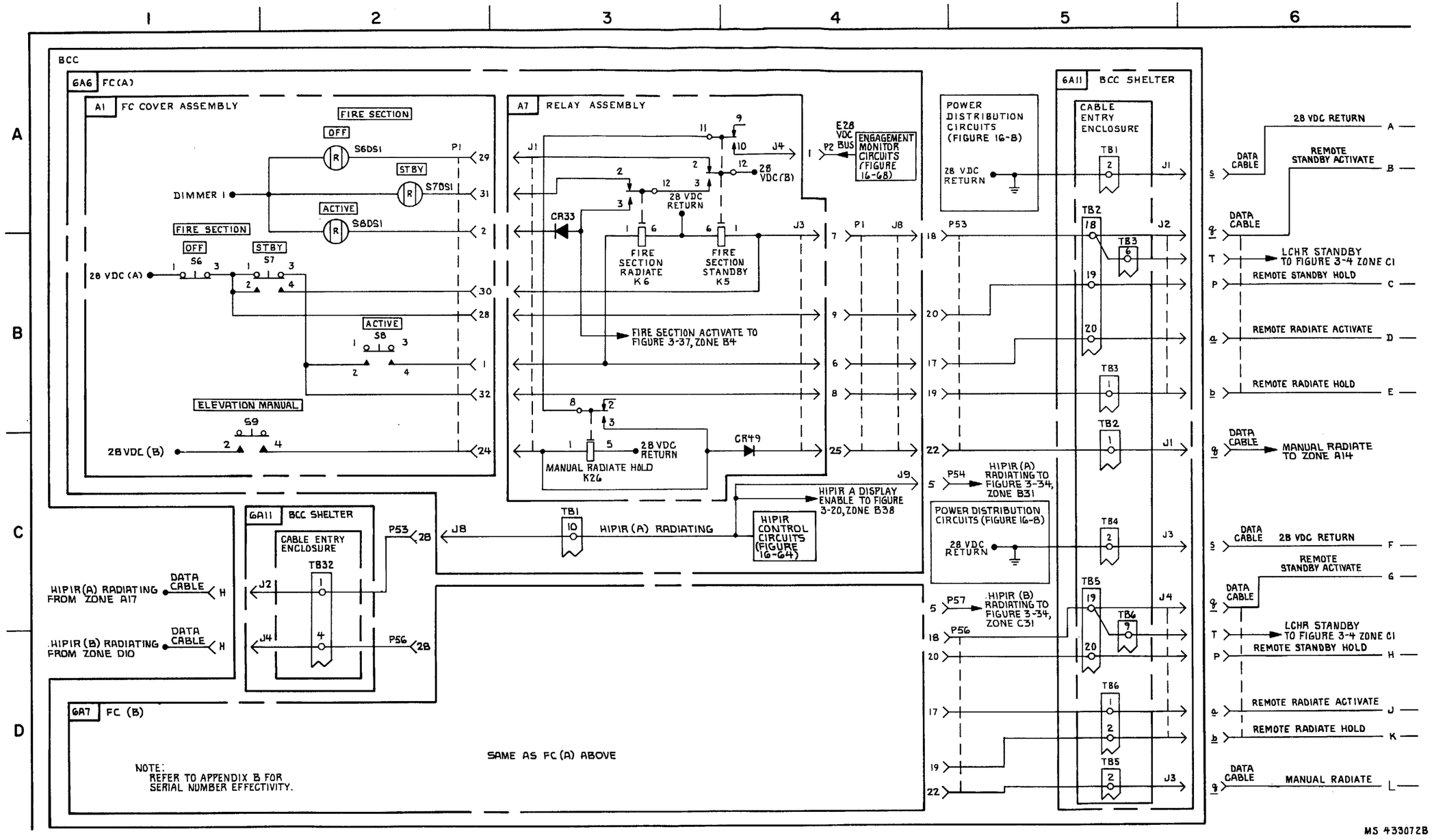

*FIGURE 3-3. HIPIR ENERGIZING AND CONTROL * (T) (SEE NOTE) SYSTEM FUNCTIONAL DIAGRAM 'SHEET 1 OF3)*

3-6/3-7 Blank

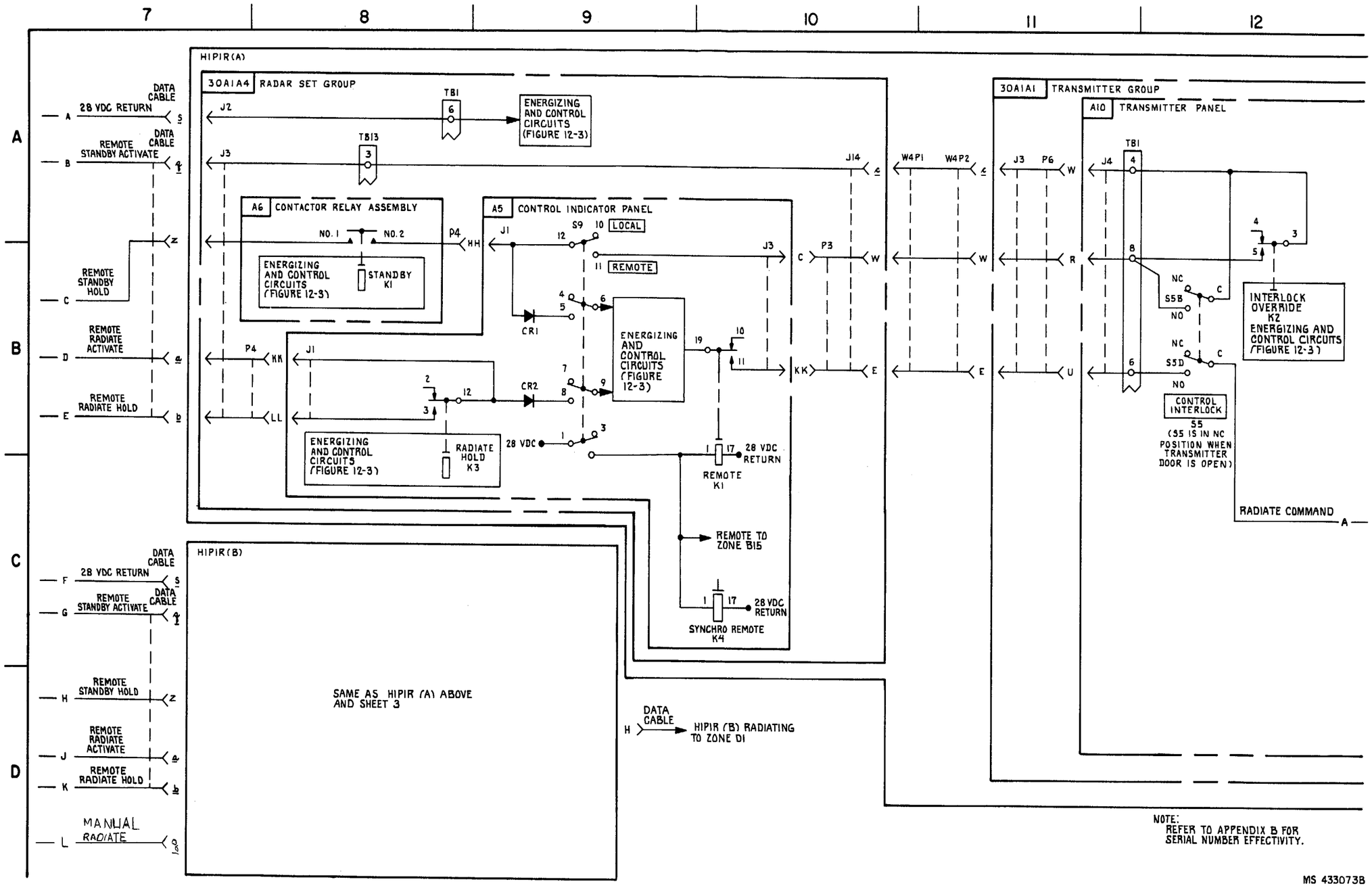

*FIGURE 3-3. HIPIR ENERGIZING AND CONTROL * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM SHEET OF 3).*

3-7/3-8 Blank

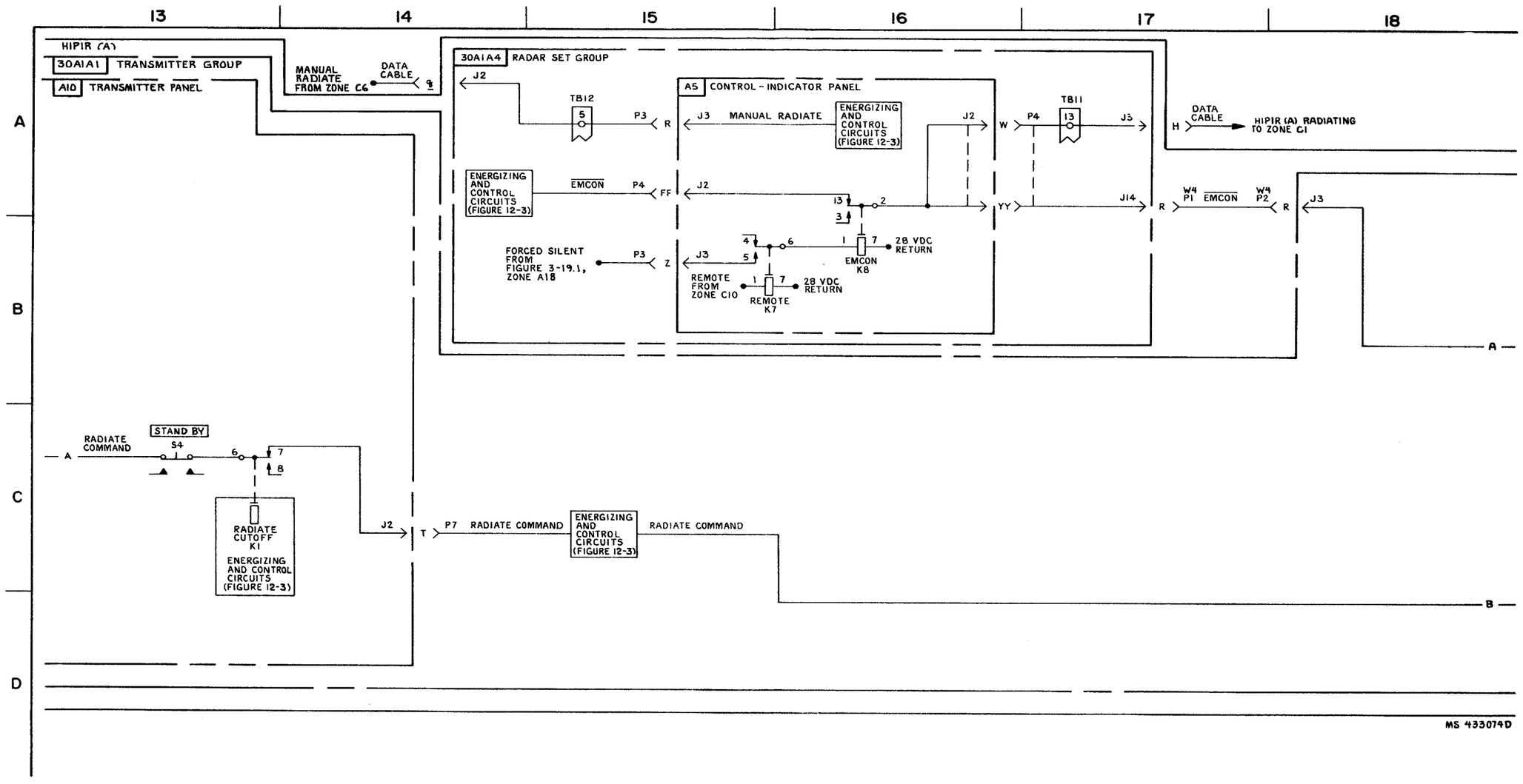

FIGURE 3-3. HIPIR ENERGIZING AND CONTROL-SYSTEM FUNCTIONAL DIARGRAM (SHEET 2.1 OF 3).

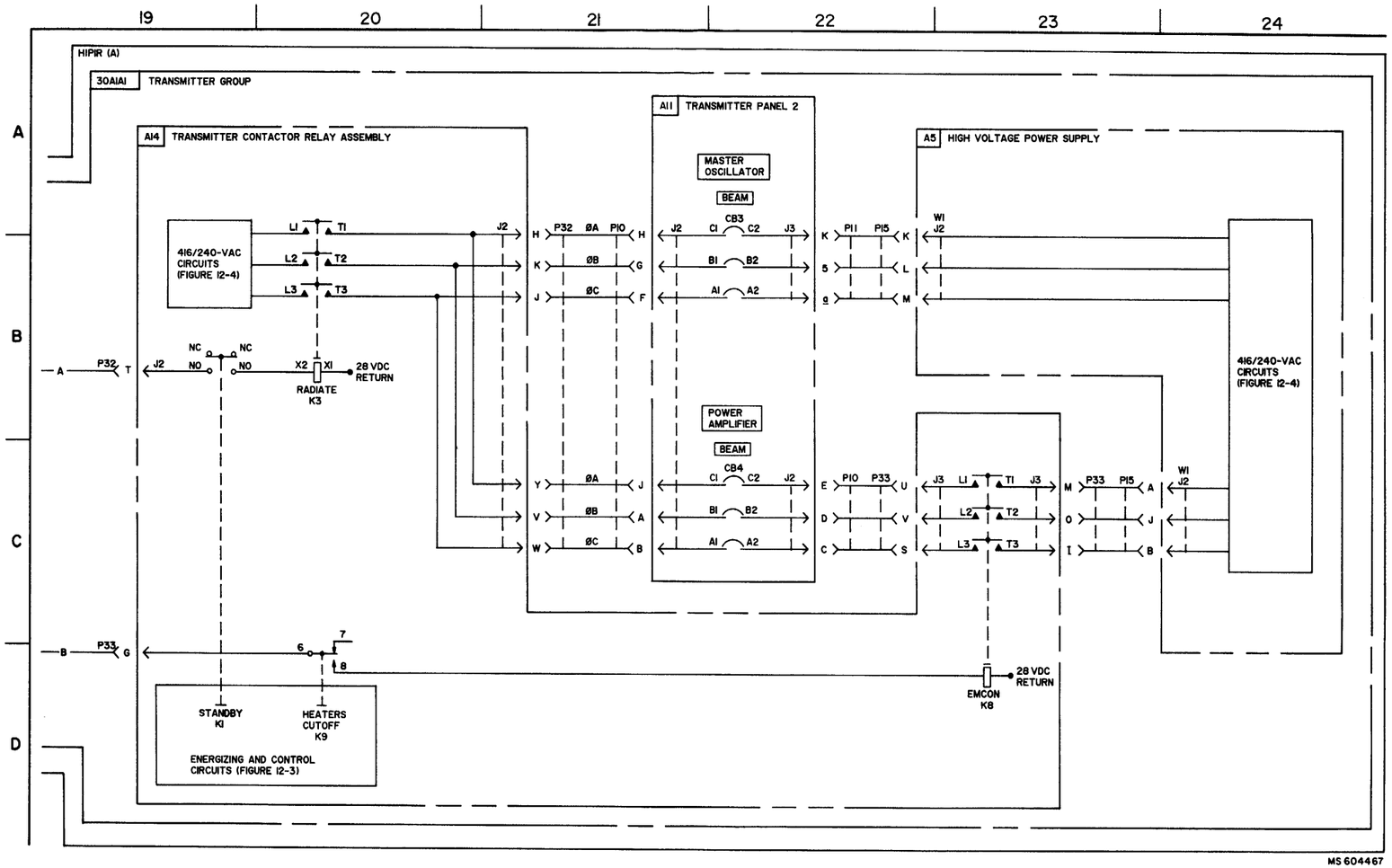

FIGURE 3-3. HIPIR ENERGIZING AND CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 3).

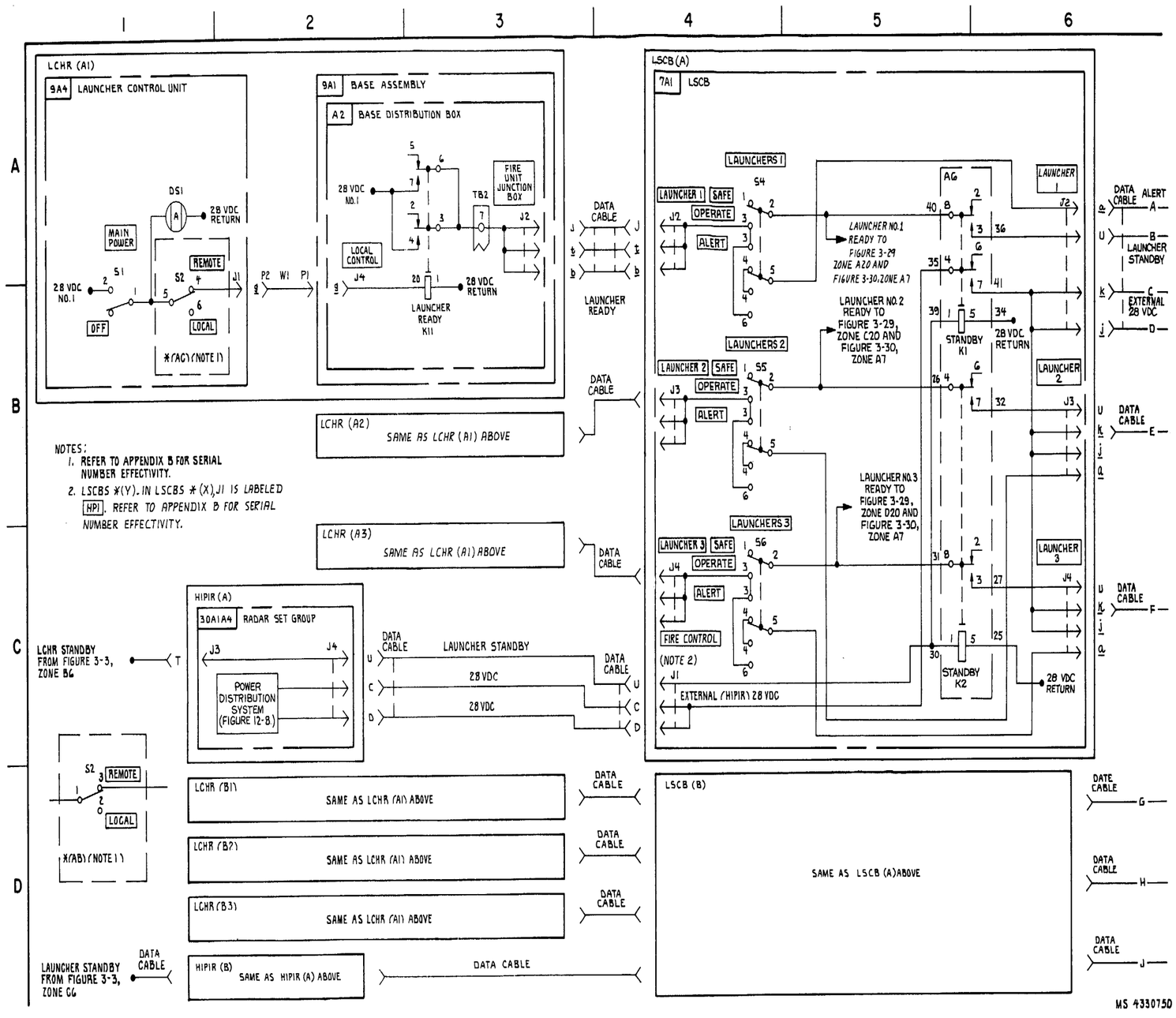

FIGURE 3-4. LCHR ENERGIZING,CONTROL,AND MISSILE PRESENT- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 9).

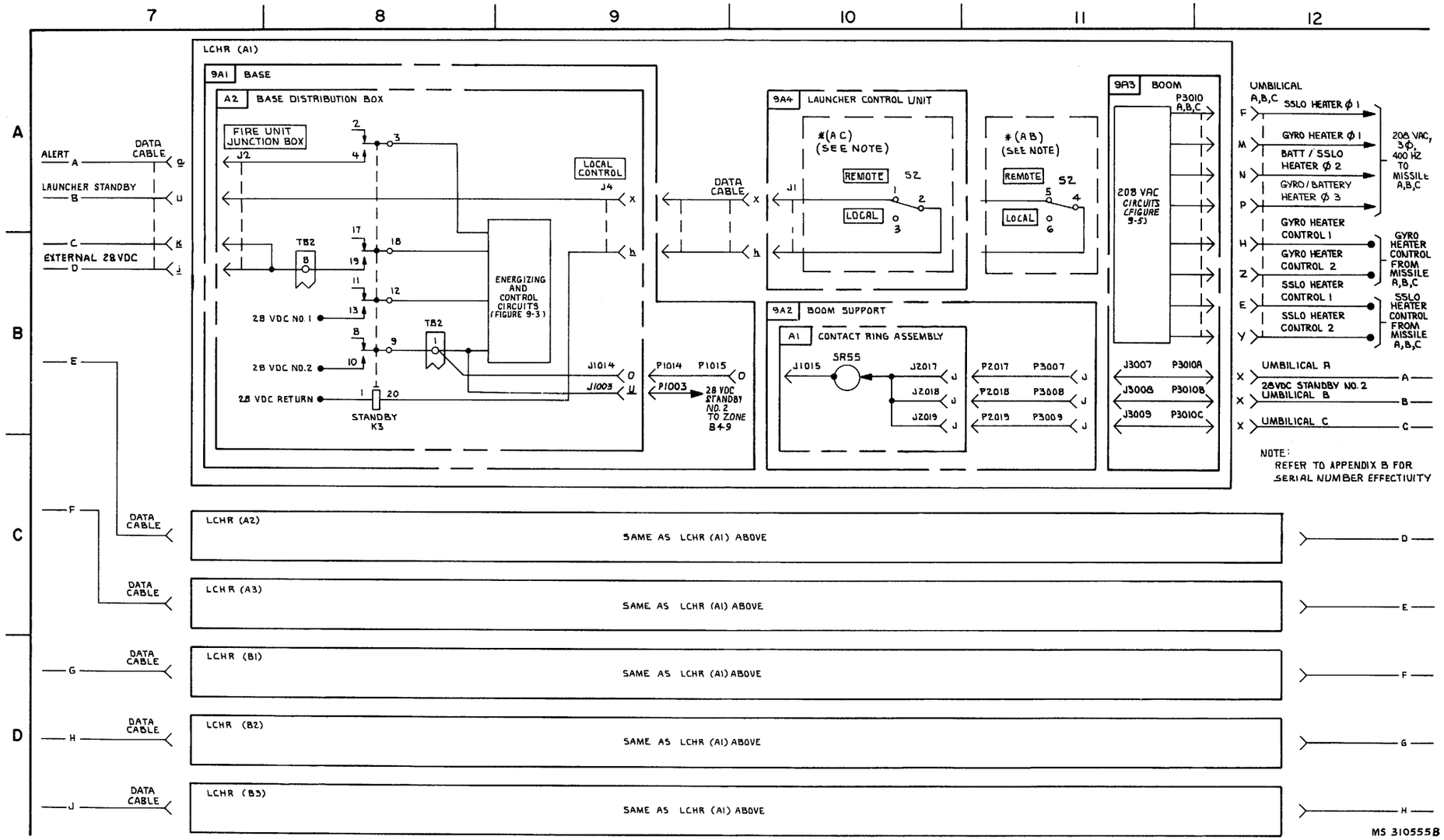

FIGURE 3-4. LCHR ENERGIZING, CONTROL, AND MISSILE PRESENT SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 9)

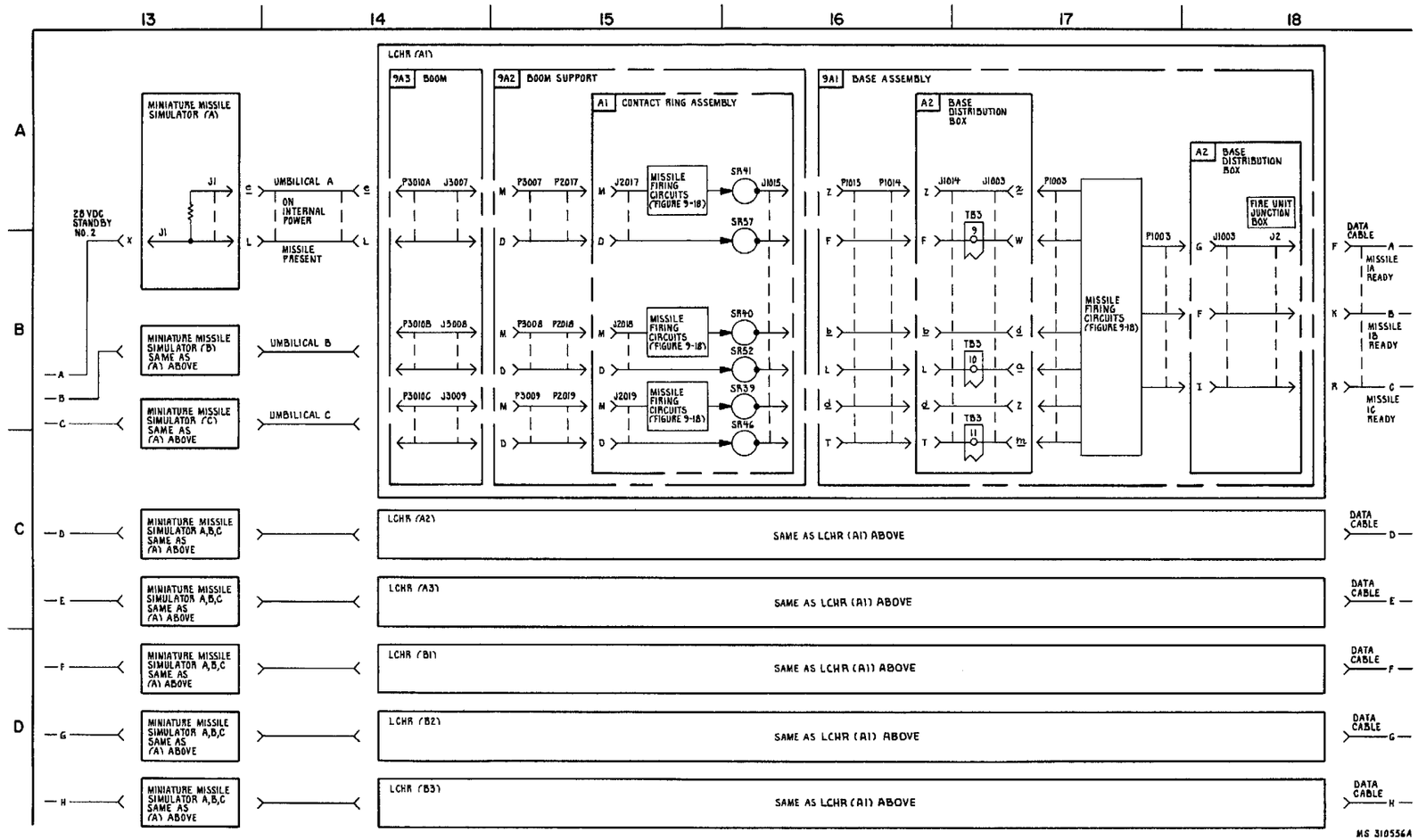

FIGURE 3-4. LCHR ENERGIZING CONTROL AND MISSILE PRESENT-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 9).

3-13(3-14 blank)

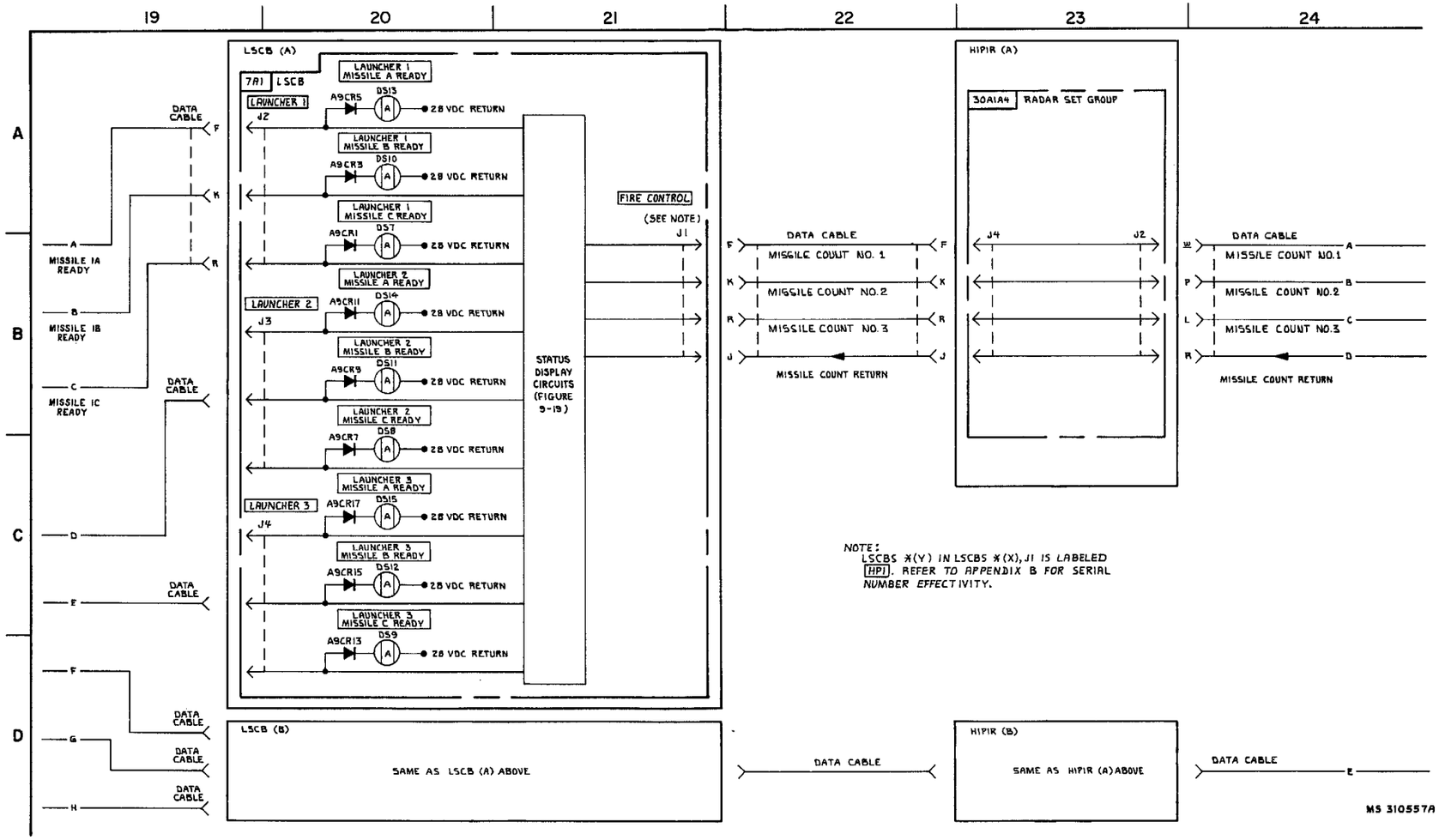

FIGURE 3-4. LCHR ENERGIZING,CONTROL, AND MISSILE PRESENT -SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 9).

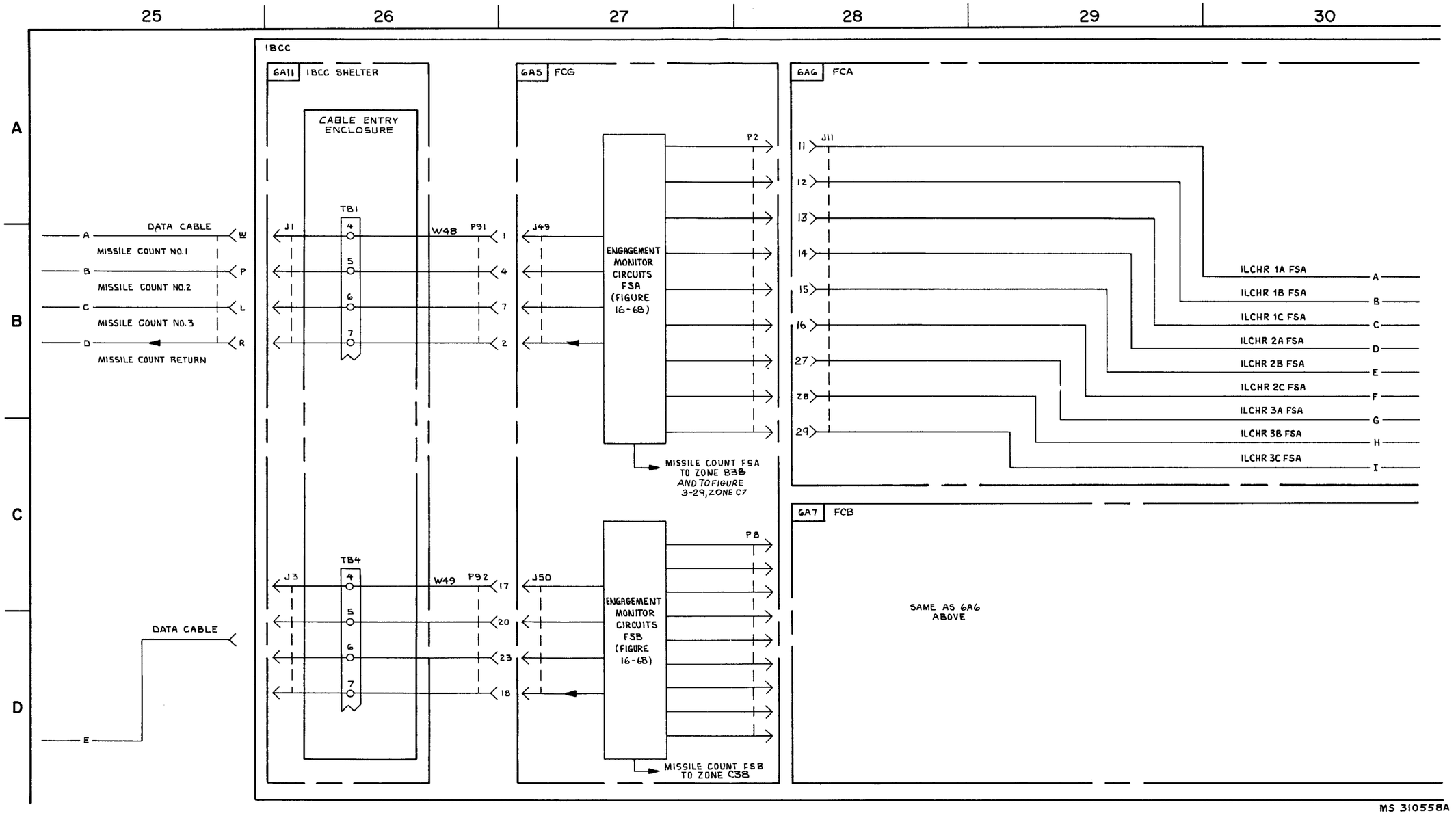

FIGURE 3-4. ILCHR ENERGIZING CONTROL,AND MISSILE PRESENT - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 9)

3-17/3-18 Blank

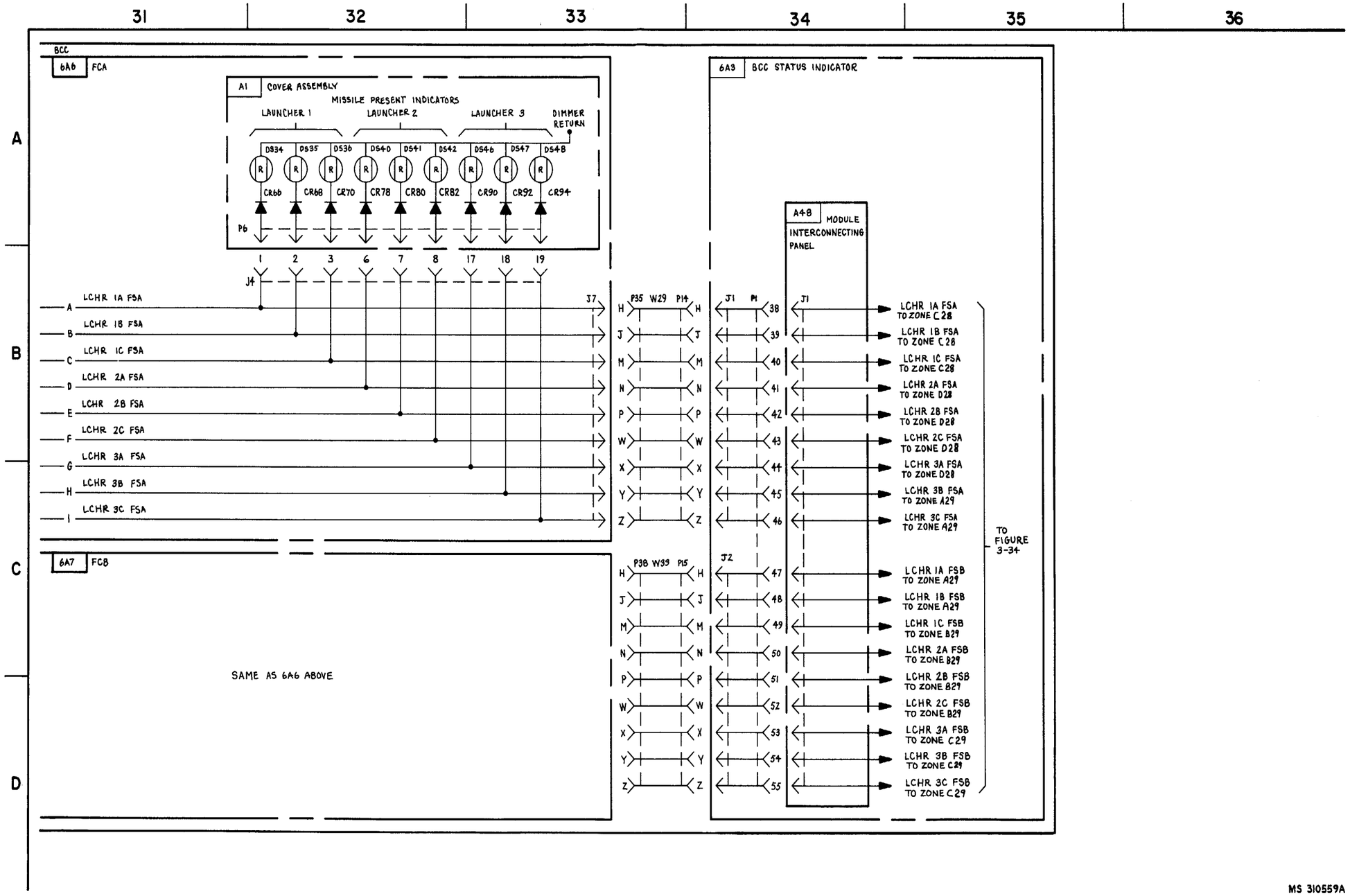

FIGURE 3-4. LCHR ENERGIZING, CONTROL AND MISSILE PRESENT -SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 9)

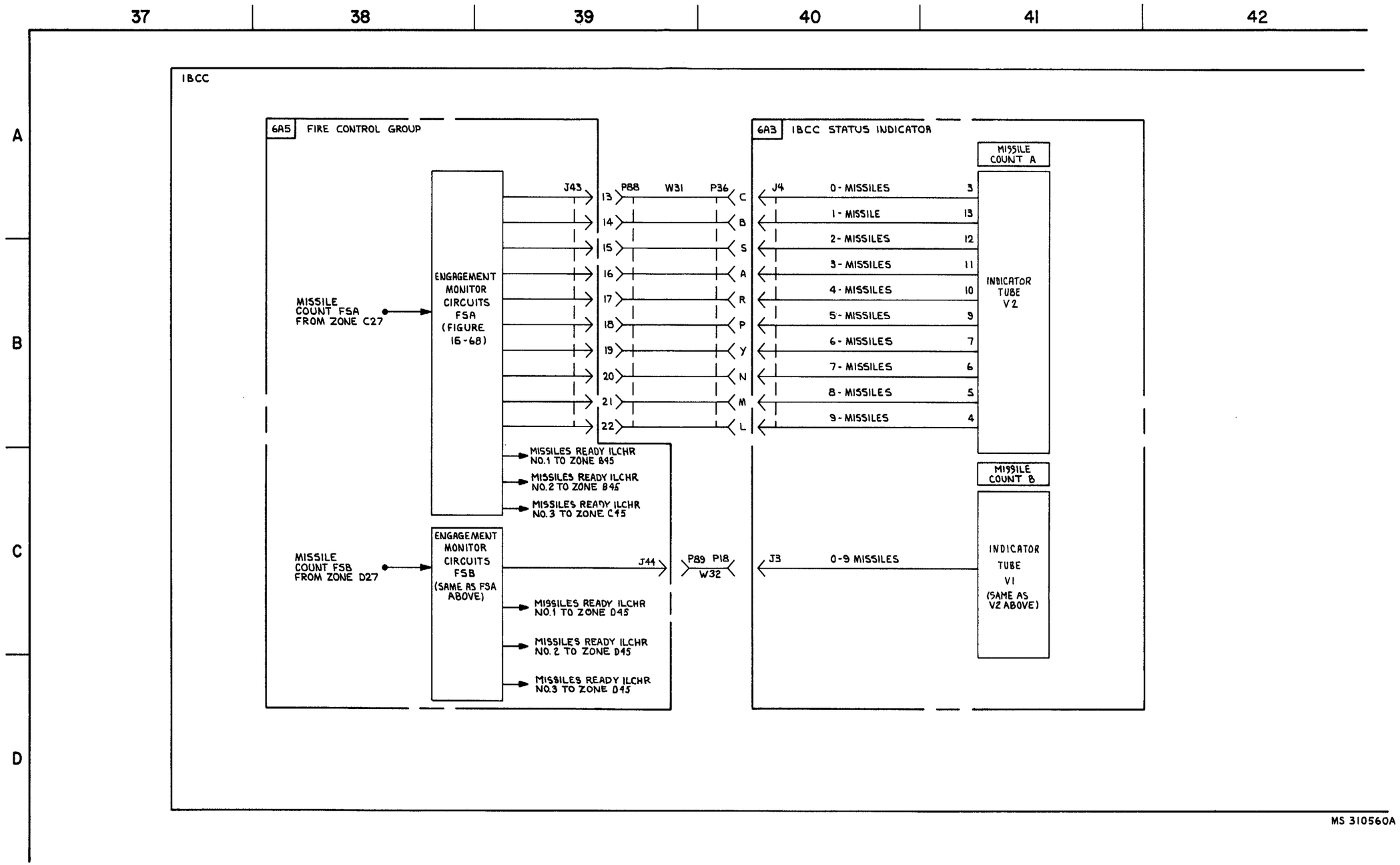

FIGURE 3-4. ILCHR ENEGRIZING, CONTROL, AMD MISSILE PRESENT- SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 9).

3-21/3-22 Blank

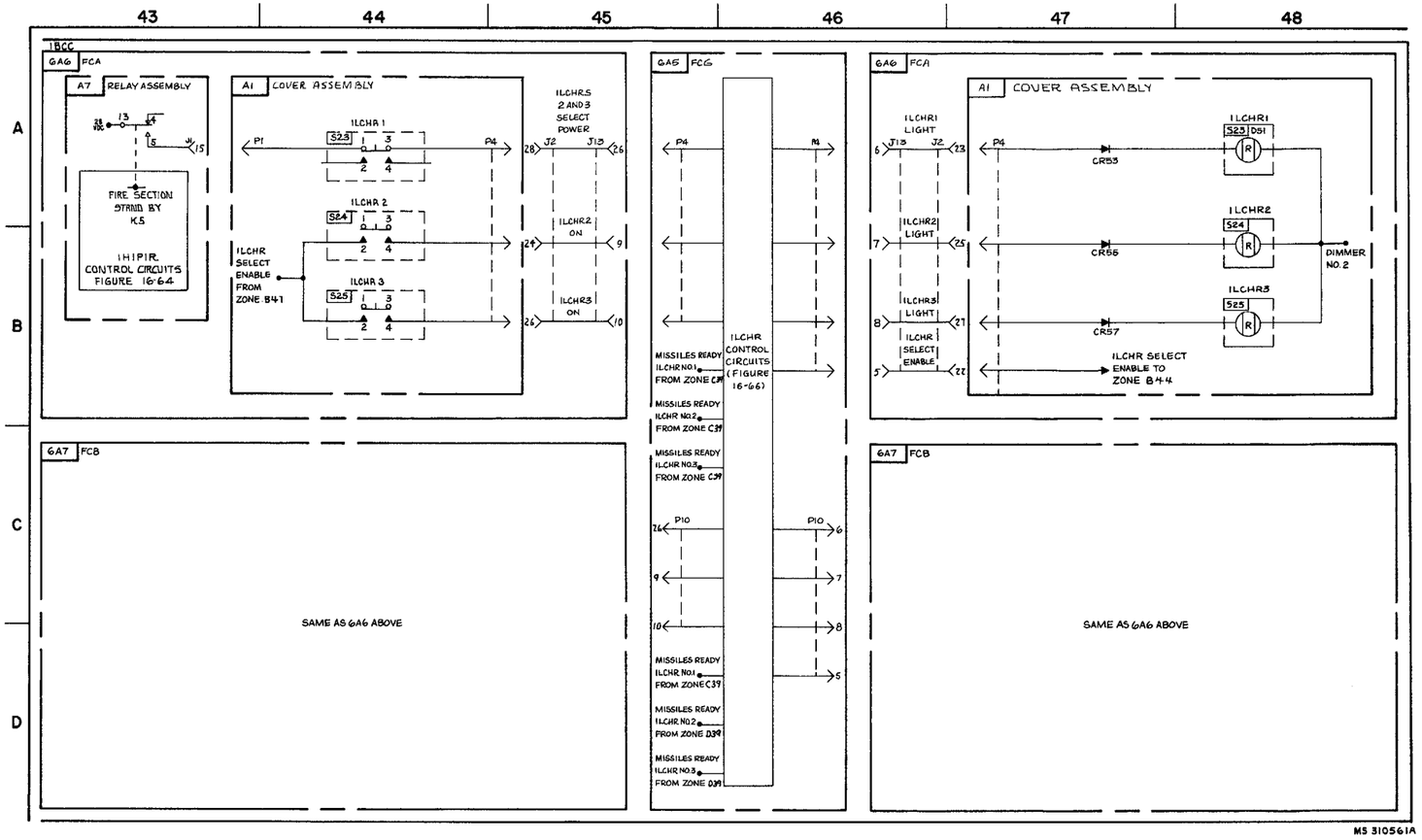

FIGURE 3-4.1 ILCHR ENERGIZING,CONTROL,AND MISSILE PRESENT-SYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 9)

3-23/3-24 Blank

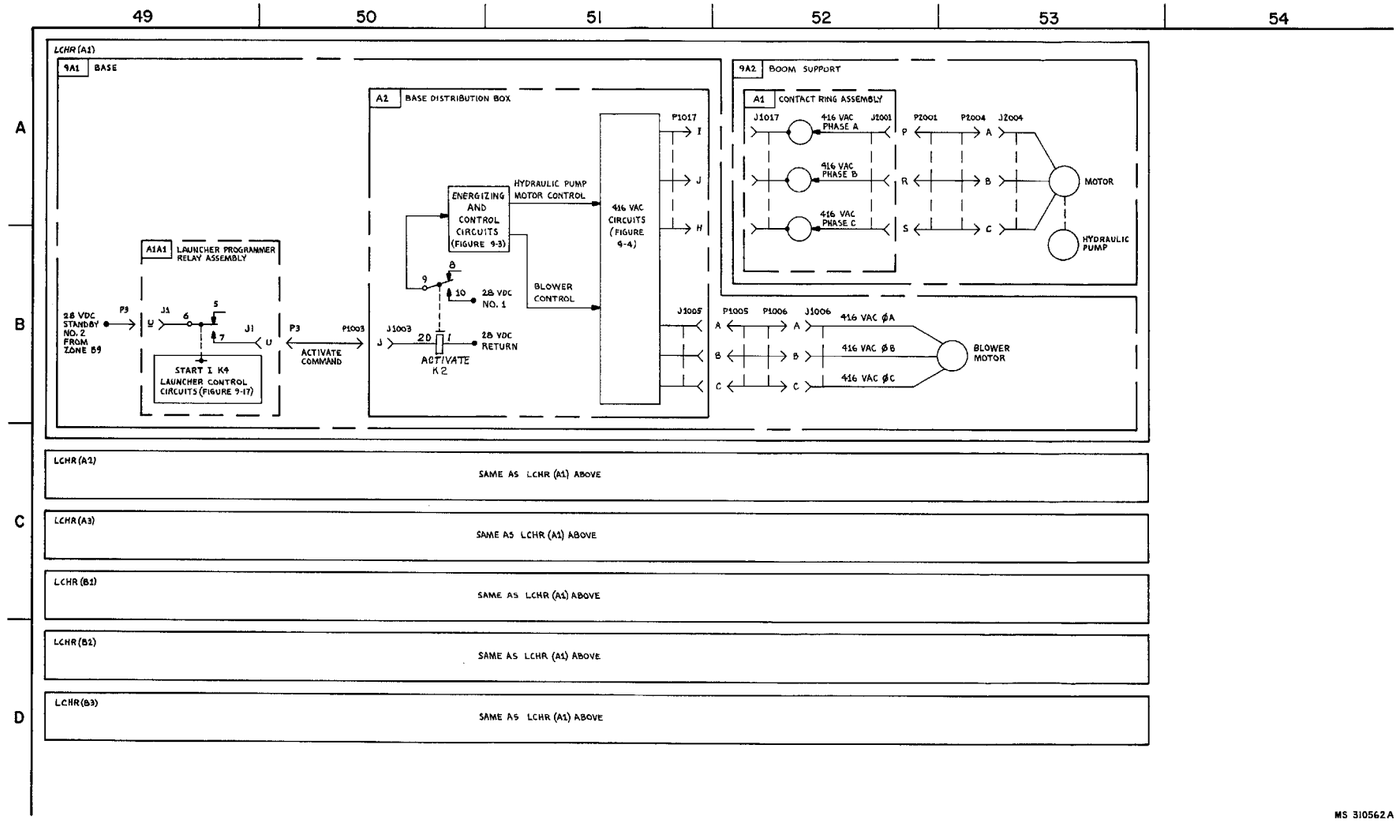

FIGURE 3-4. LCHR ENERGIZING, CONTROL, AND MISSILE PRESENT-SYSTEM FUNCTIONAL DIAGRAM (SHEET 9 OF 9)

3-25/3-26 Blank

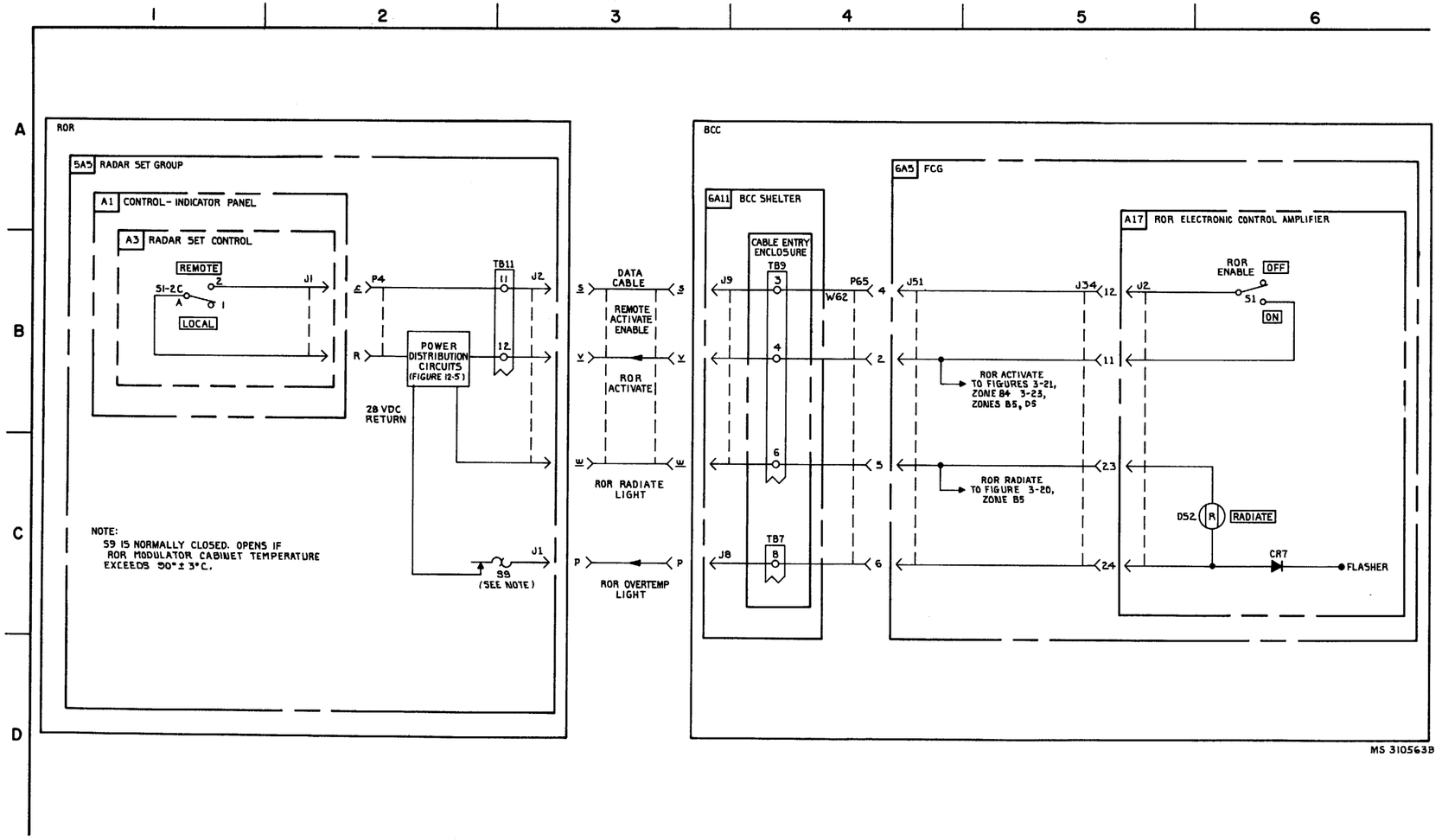

FIGURE 3-5. ROR ENERGIZING AND CONTROL-SYSTEM FUNCTIONAL DIAGRAM.

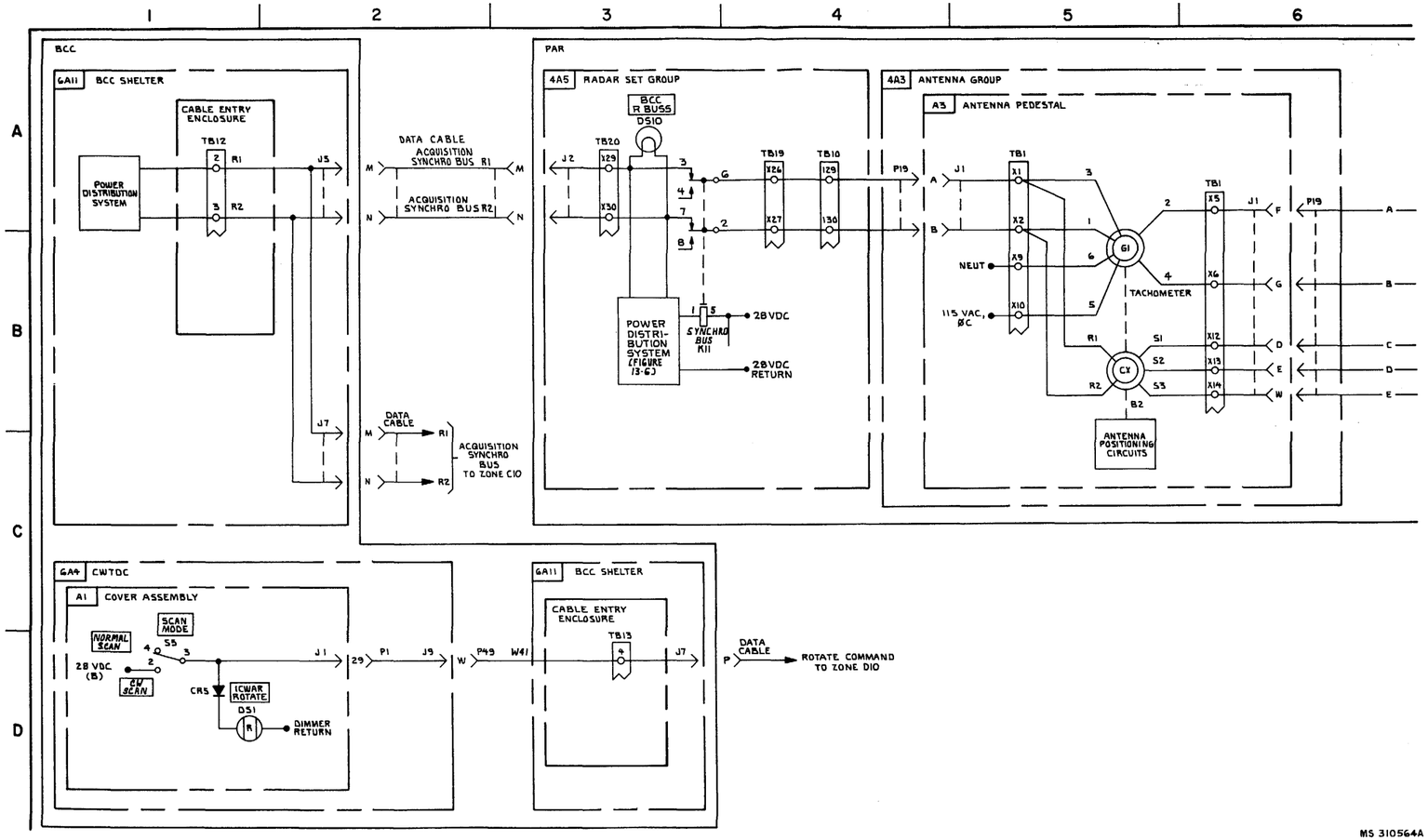

FIGURE 3-6. PAR AND CWAR ANTENNA CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 5).

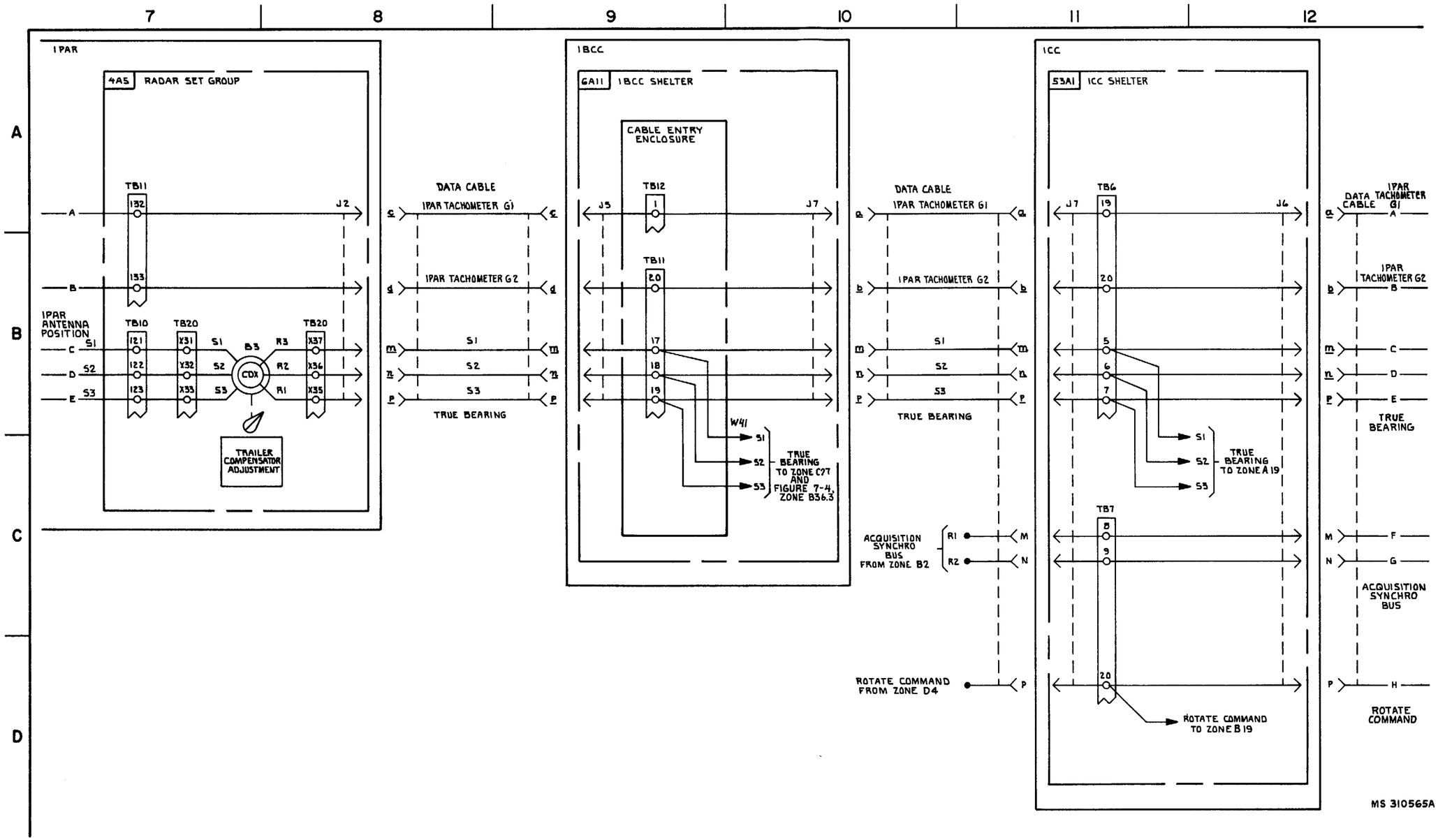

FIGURE 3-6. IPAR AND ICWAR ANTENNA CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 5.)

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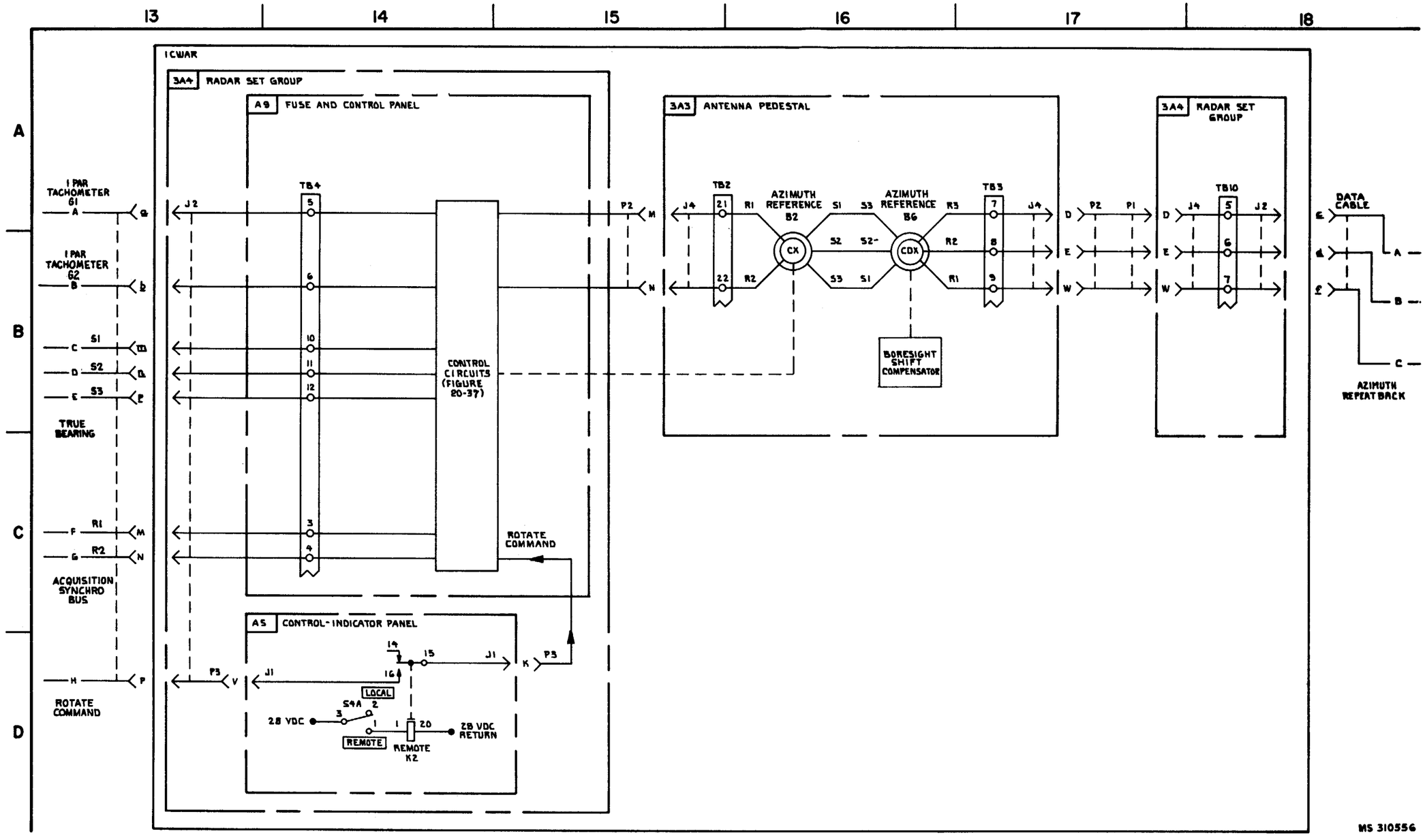

FIUGRE 3-6,. IPAR AND ICWAR ANTENNA CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 5).

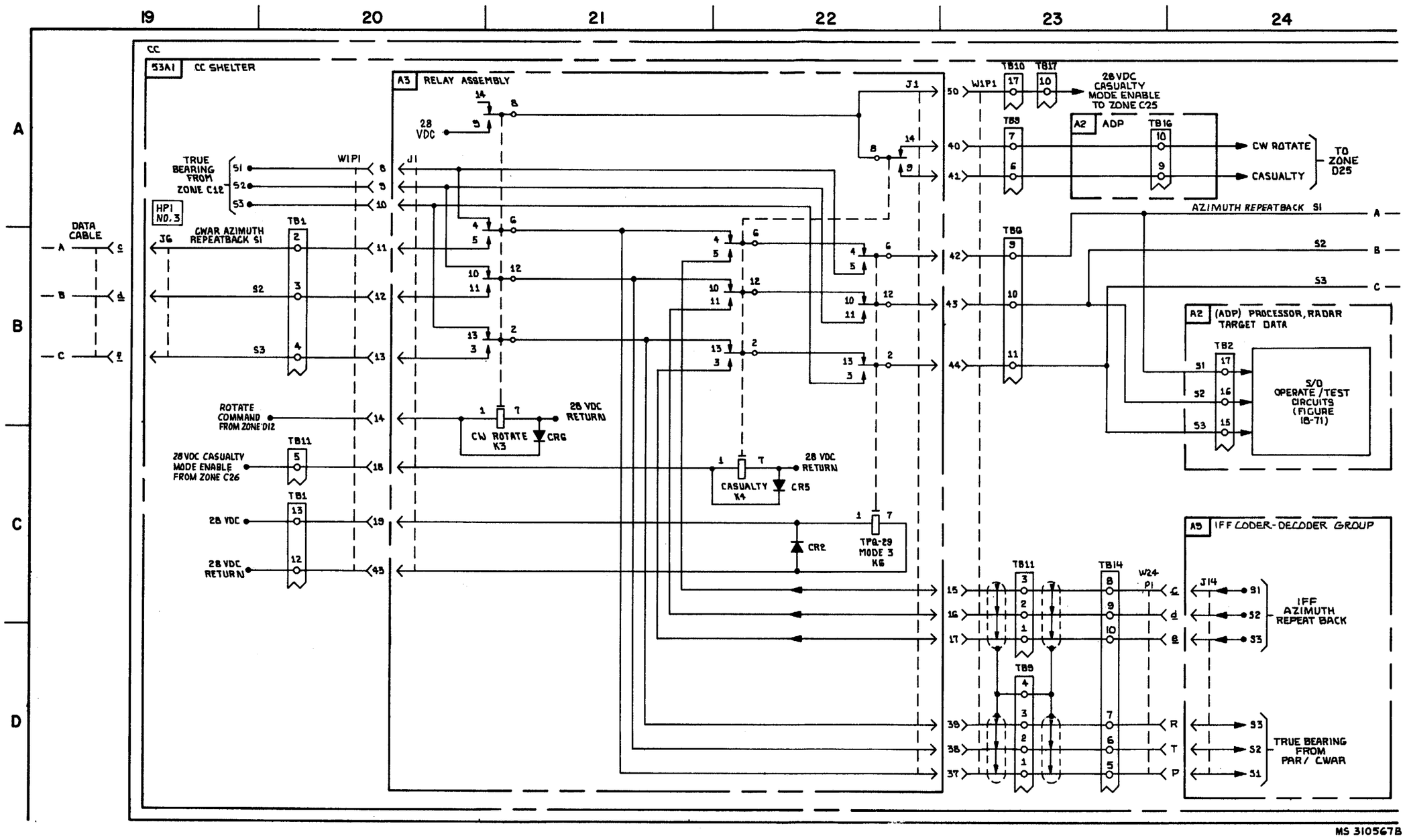

FIGURE 3-6. PAR AND CWAR ANTENNA CONTROL- SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 5)

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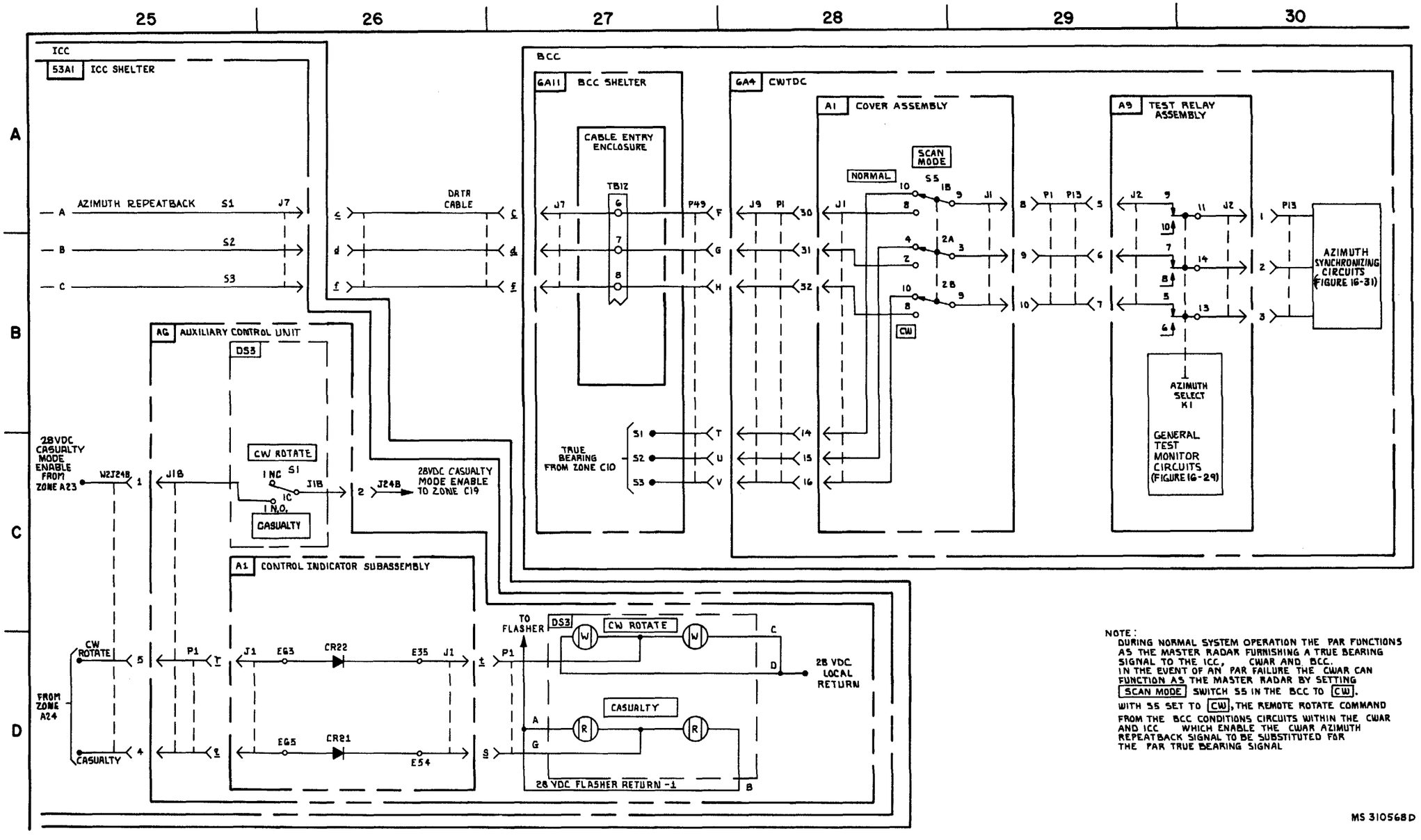
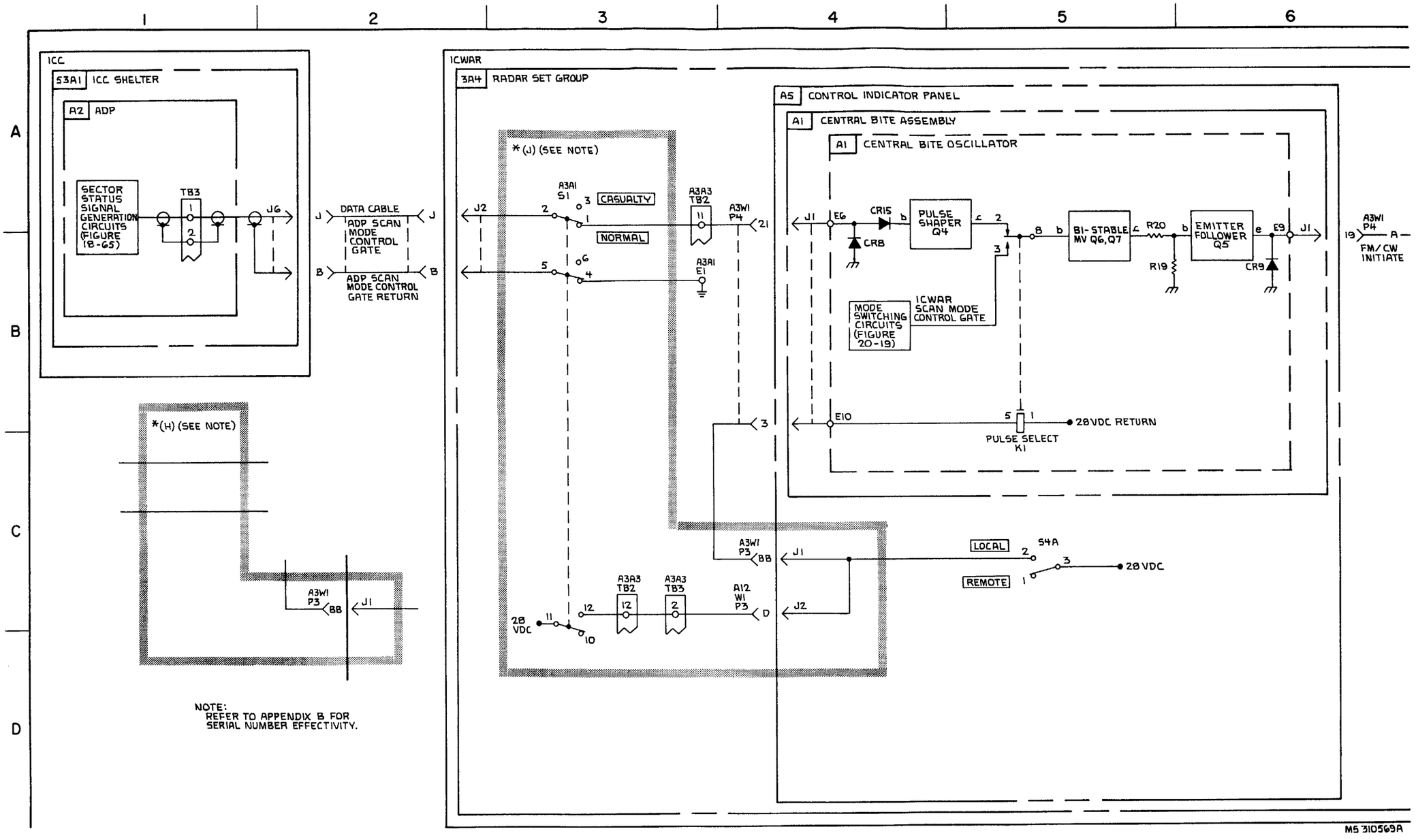


FIGURE 3-6. PAR AND CWAR ANTENNA CONTROL SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 5).



NOTE:
REFER TO APPENDIX B FOR SERIAL NUMBER EFFECTIVITY.

FIGURE 3-7. ICWAR SCAN MODE SWITCHNG--SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).

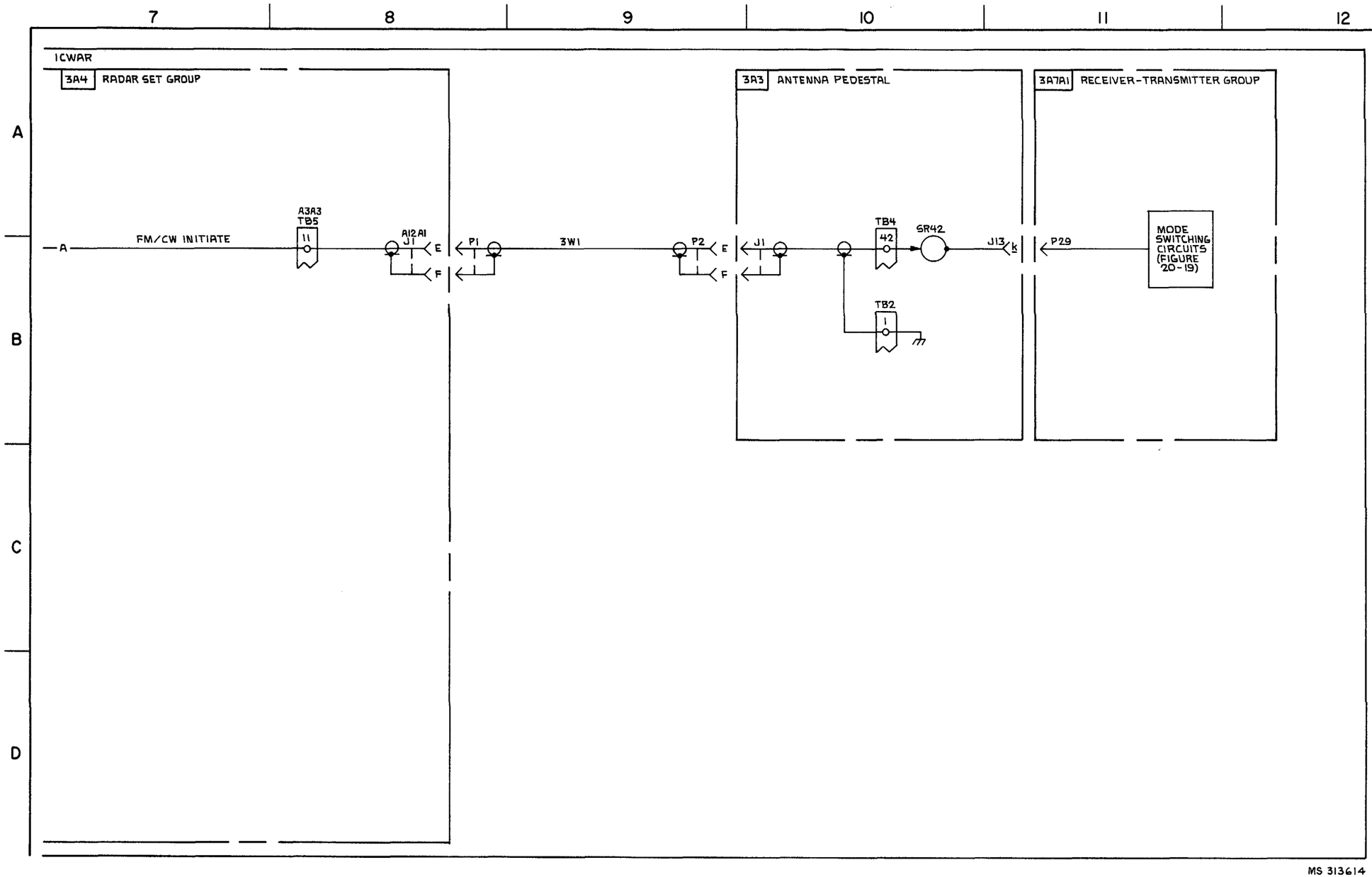


FIGURE 3-7. ICWAR SCAN MODE SWITCHIN6G-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).

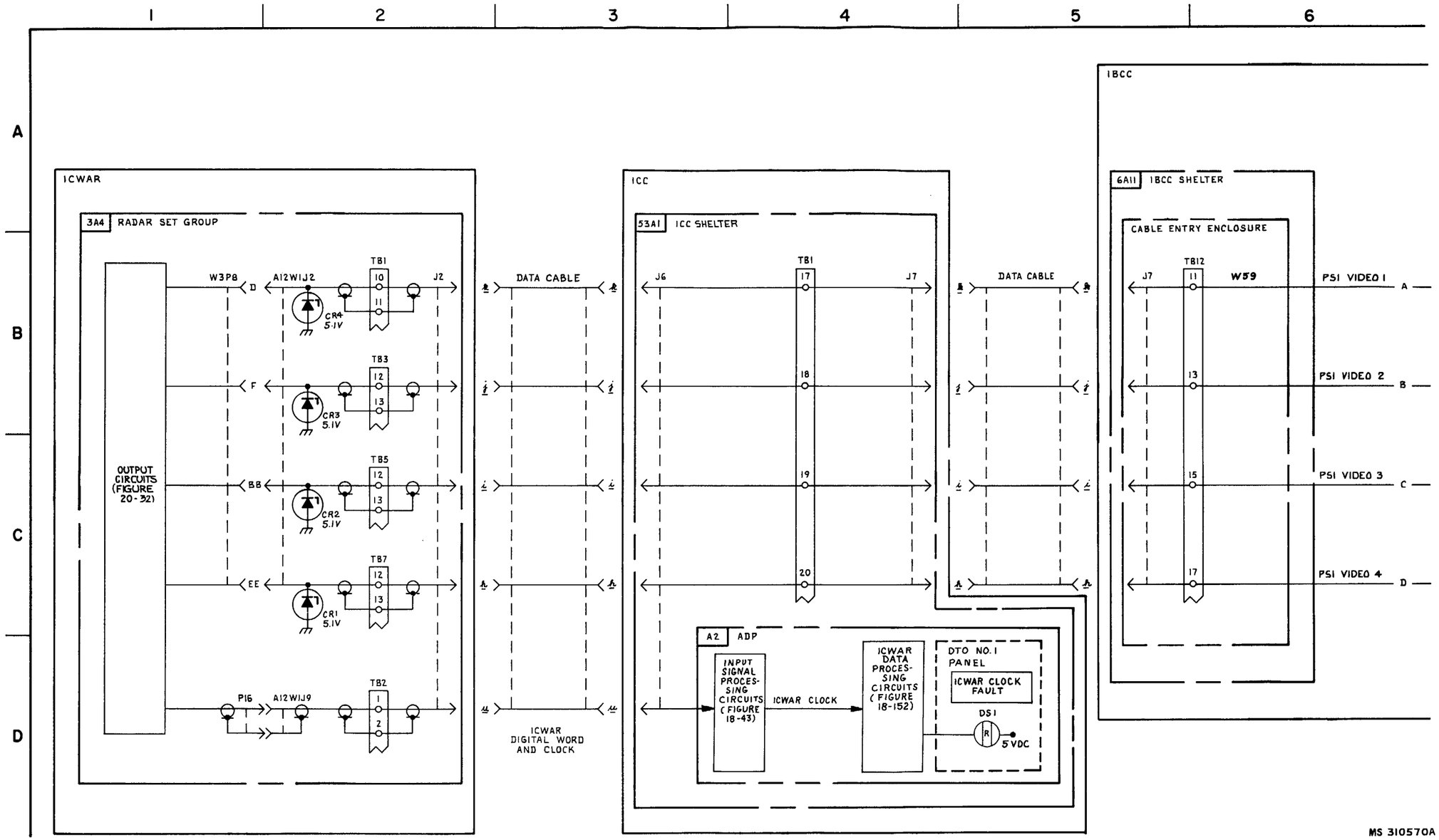


FIGURE 3-8. ICWAR PSI VIDEO, DIGITAL WORD, AND CLOCK-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).

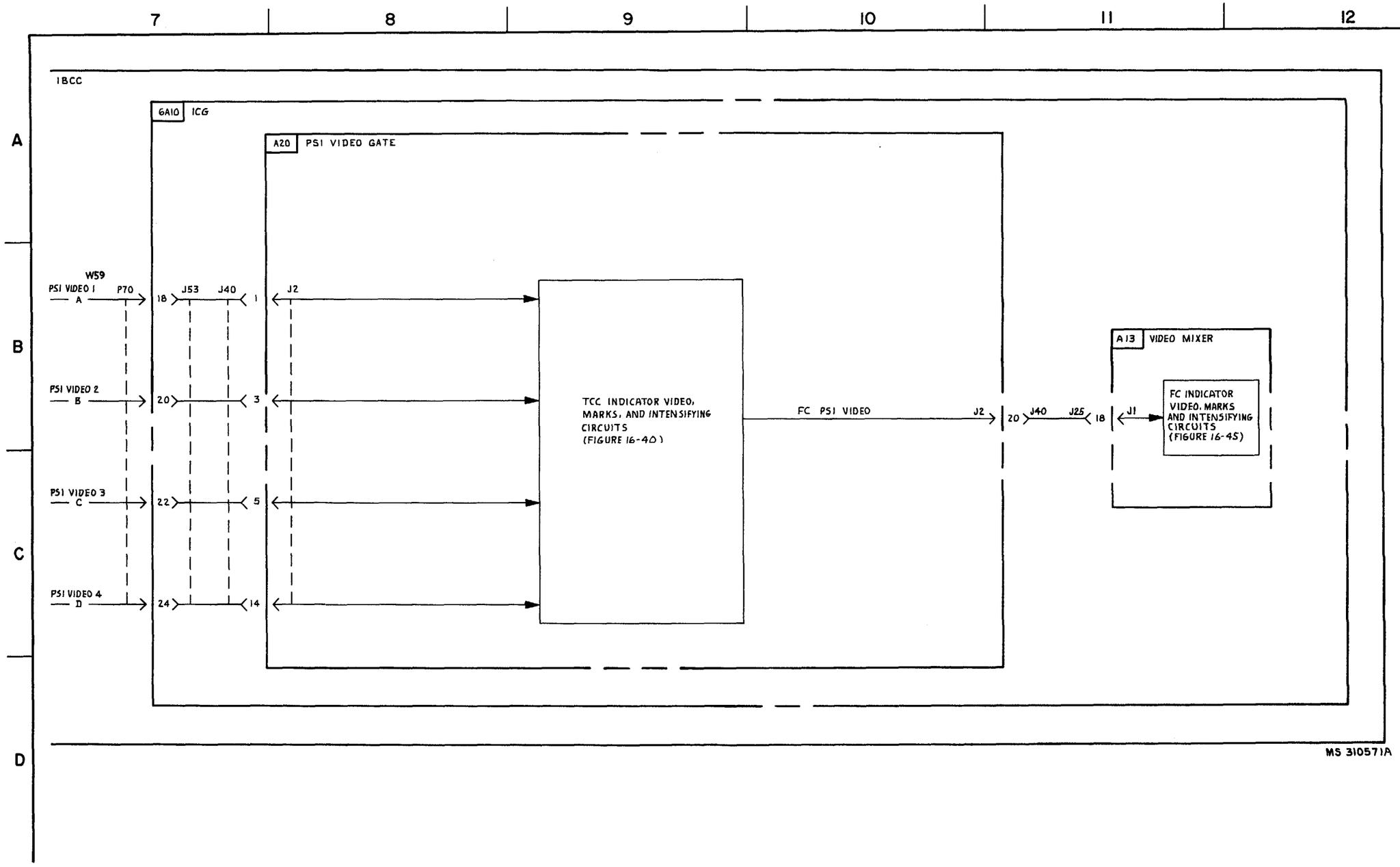


FIGURE 3-8. ICWAR PSI VIDEO, DIGITAL WORD AND CLOCK-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).

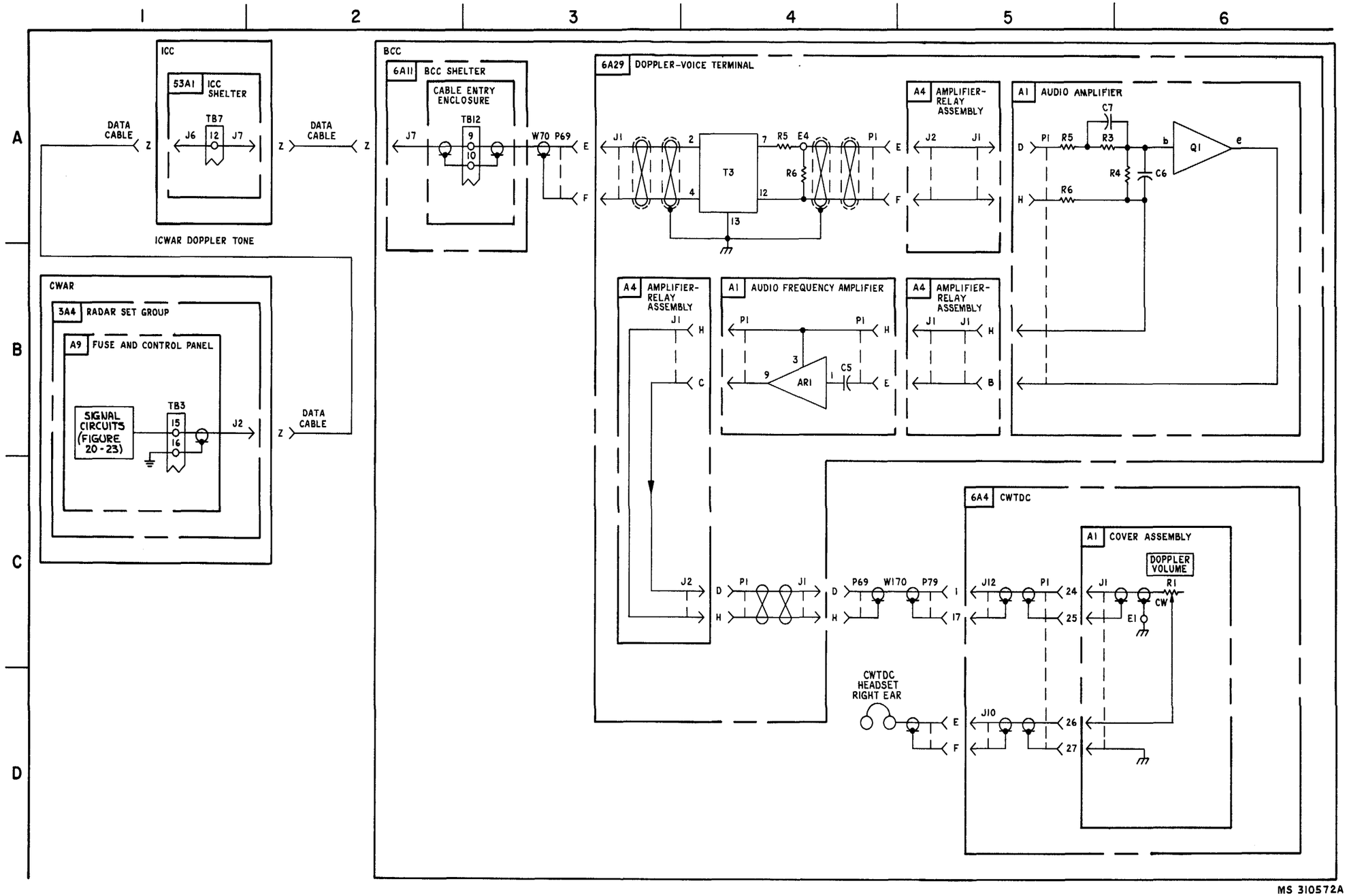


FIGURE 3-9. CWAR DOPPLER TONE-SYSTEM FUNCTIONAL DIAGRAM.

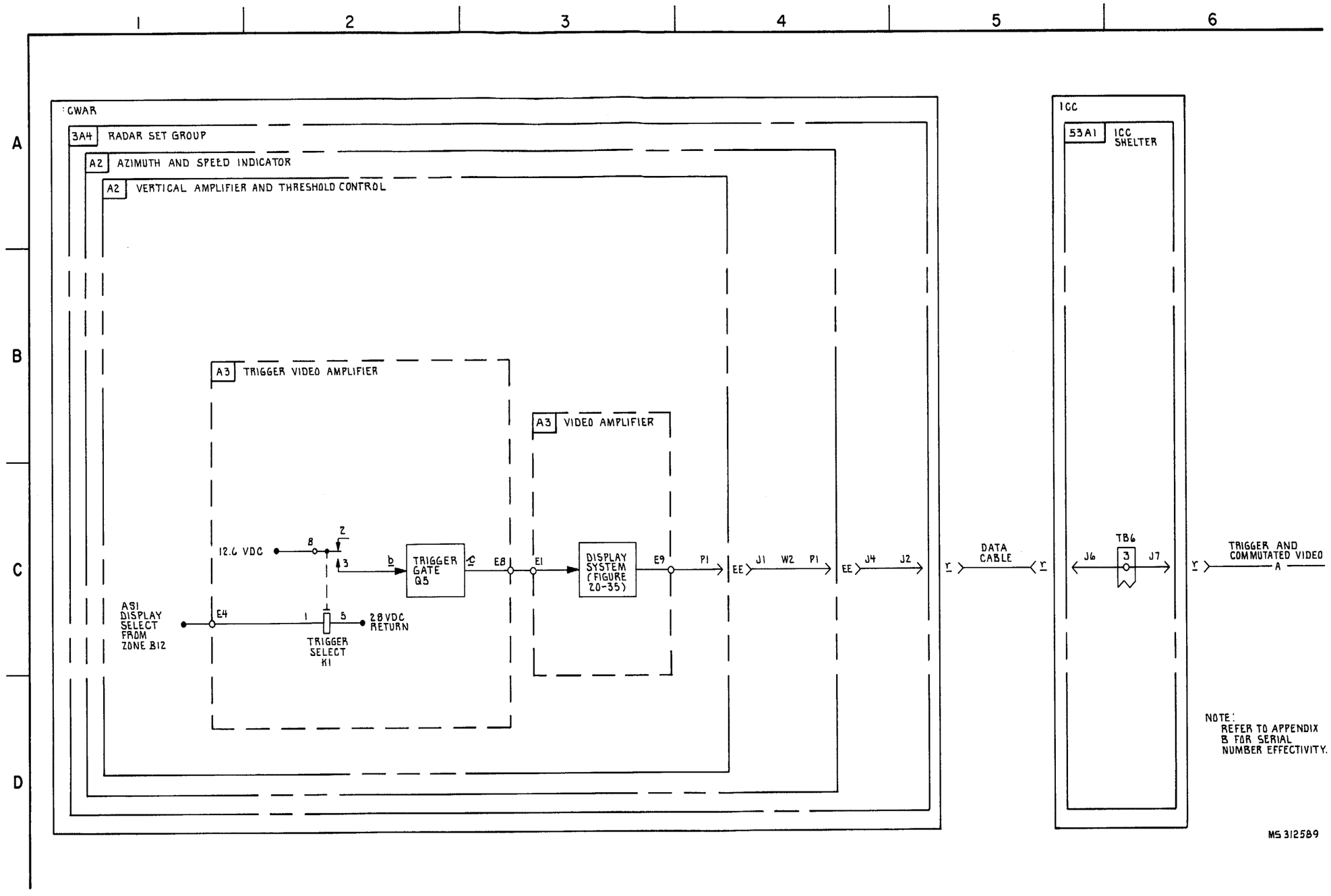


*FIGURE 3-10. CWAR TRIGGER AND COMMUTATED VIDEO * (G) (SEE NOTE) - SYSTEM FUNCTIONAL DIAEGAM (SHEET 1 OF 2)*

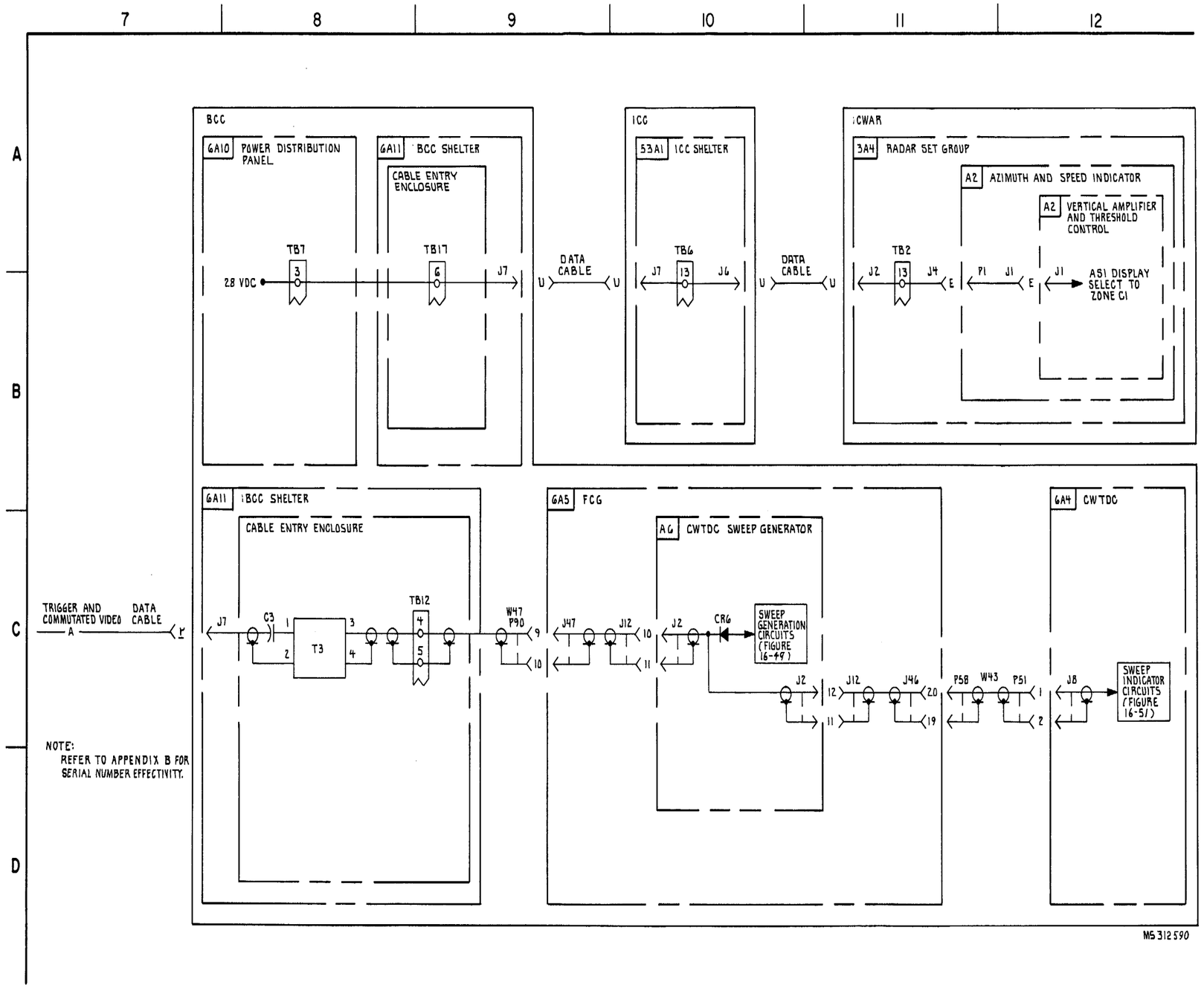


*FIGURE 3-10. CWAR TRAND COMMUTATED VIDOEO * (6) (SEE NOTE)- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).*

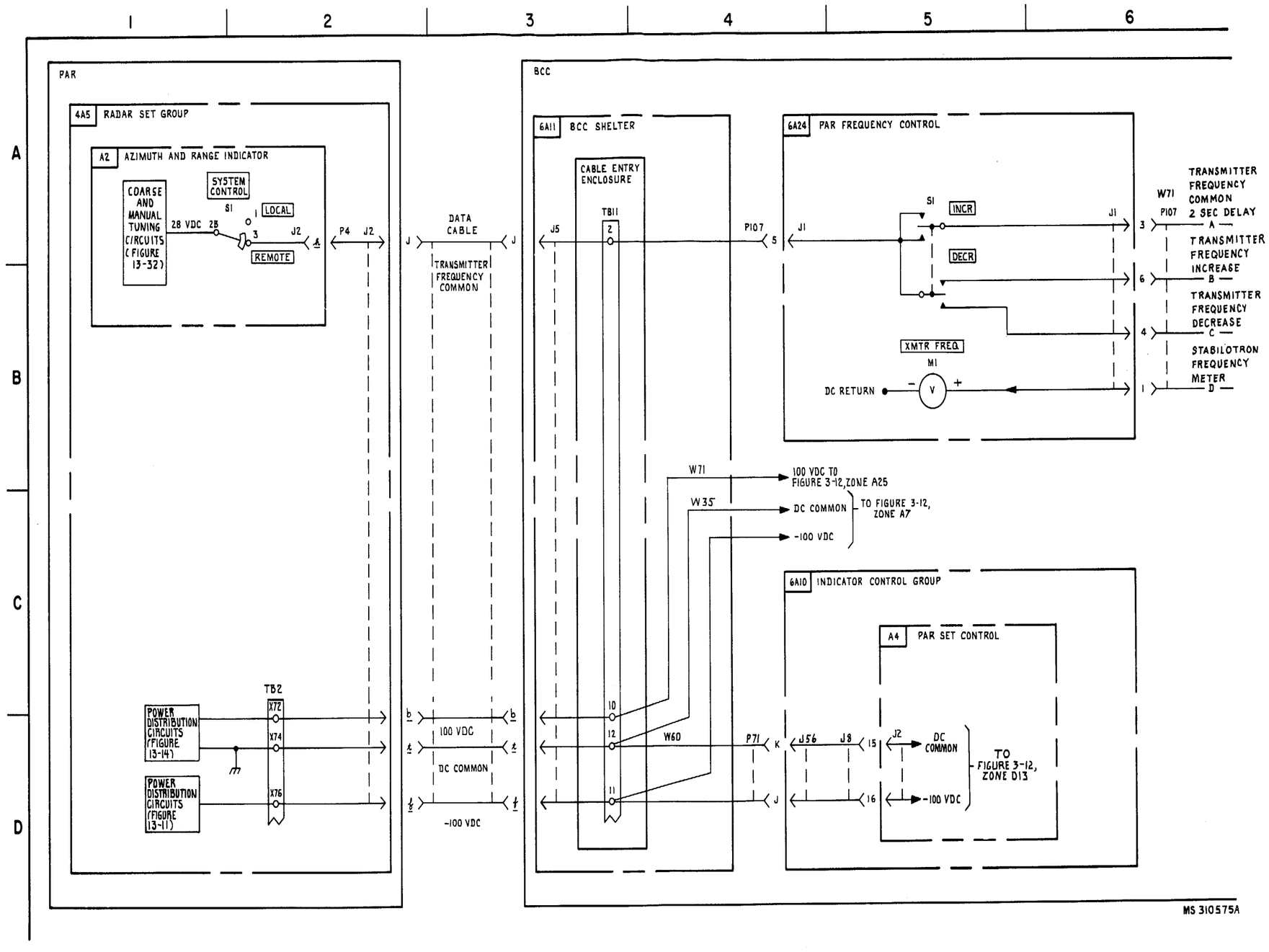


FIGURE 3-11. PAR FREQUENCY CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).

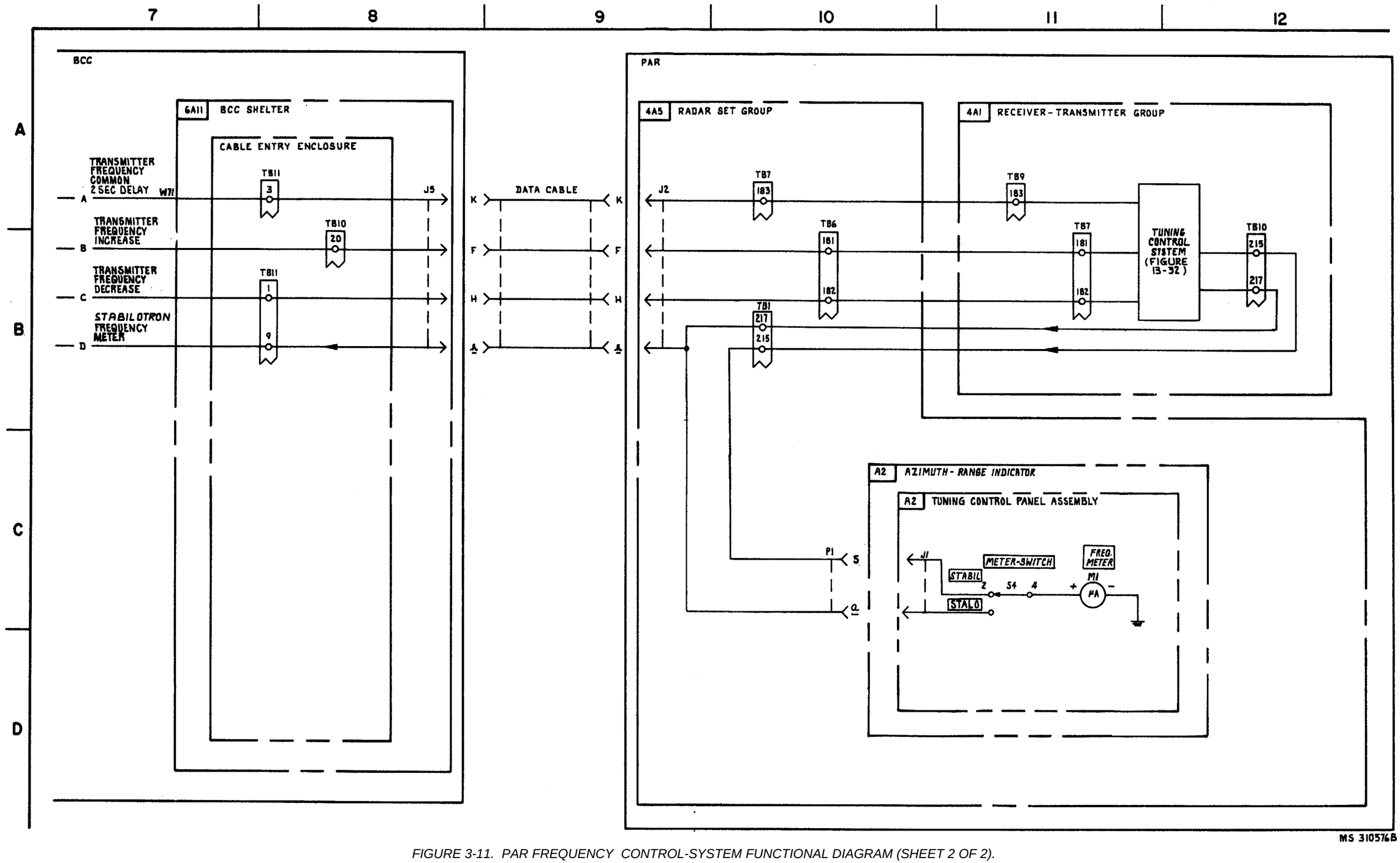


FIGURE 3-11. PAR FREQUENCY CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).

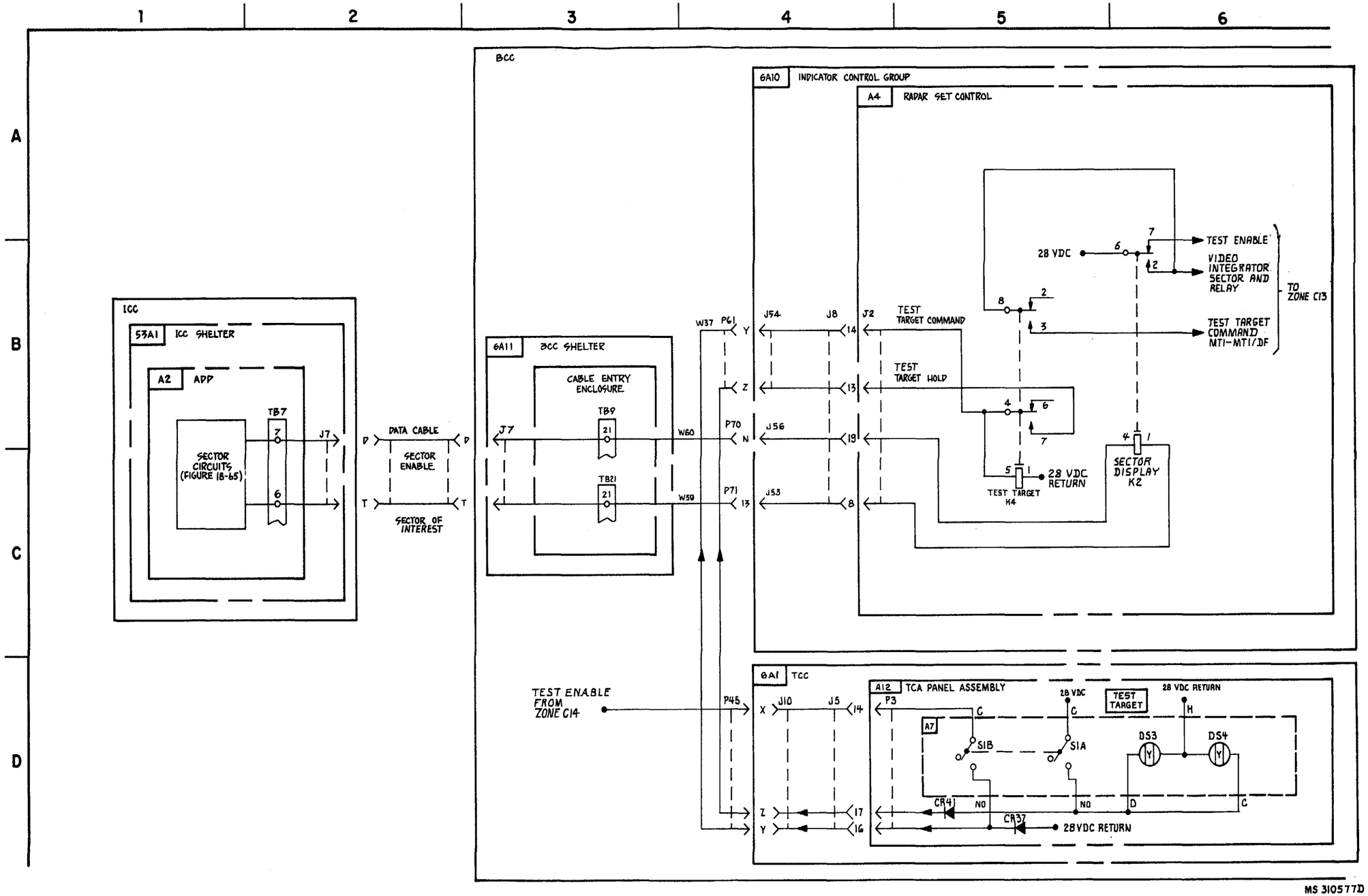


FIGURE -3-12. PAR VIDEO, VIDEO CONTROL AND SIGNAL STRENGTH - SYSTEM FUNCTONAL DIAGRAM (SHEET 1 OF 5).

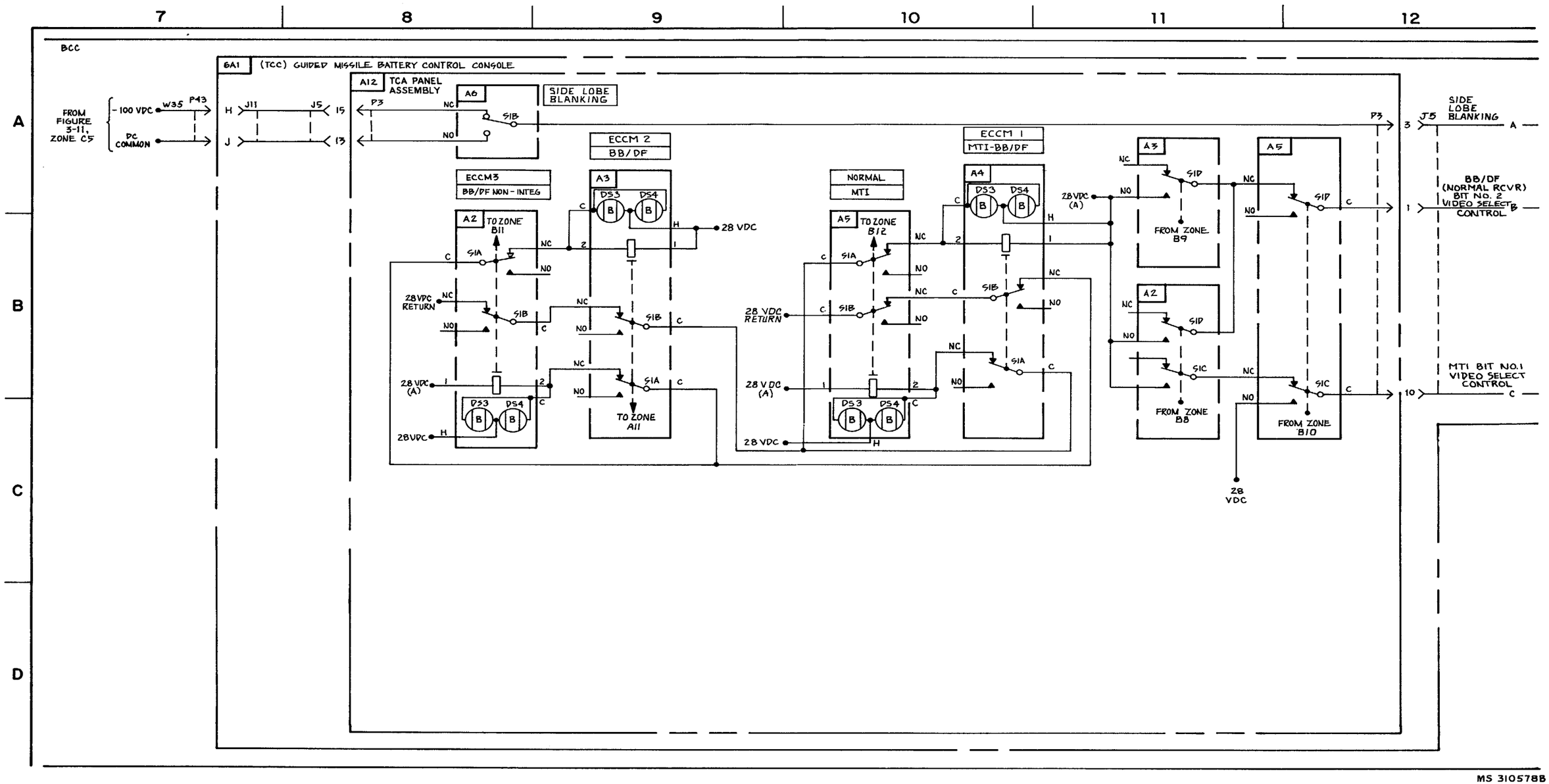


FIGURE 3-12. PAR VIDEO, VIDEO CONTROL, AND SIGNAL STRENGTH -SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 5).

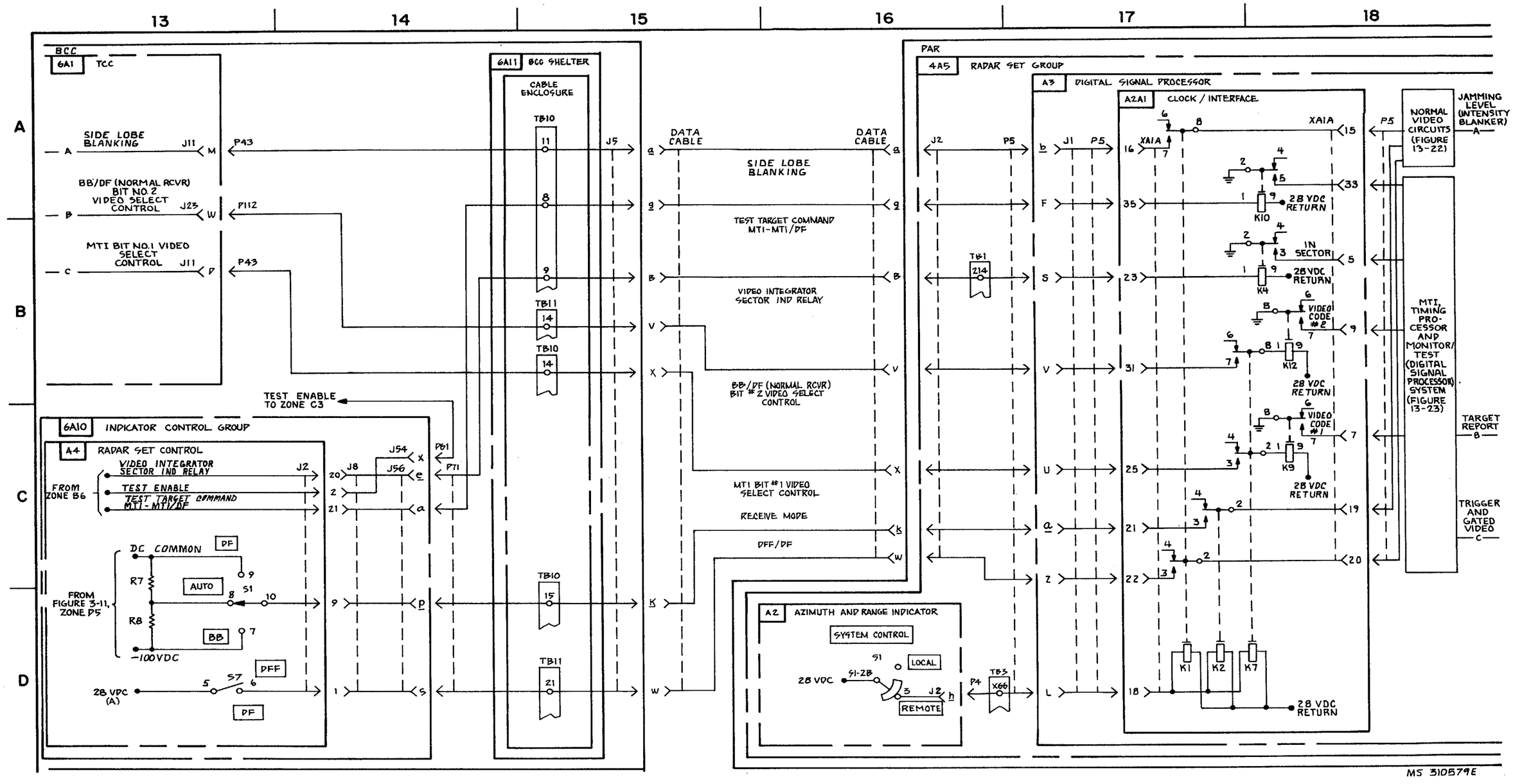


FIGURE 3-12. PAR VIDEO, VIDEO CONTROL , AND SIGNAL STRENGTH -SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 5).

C9

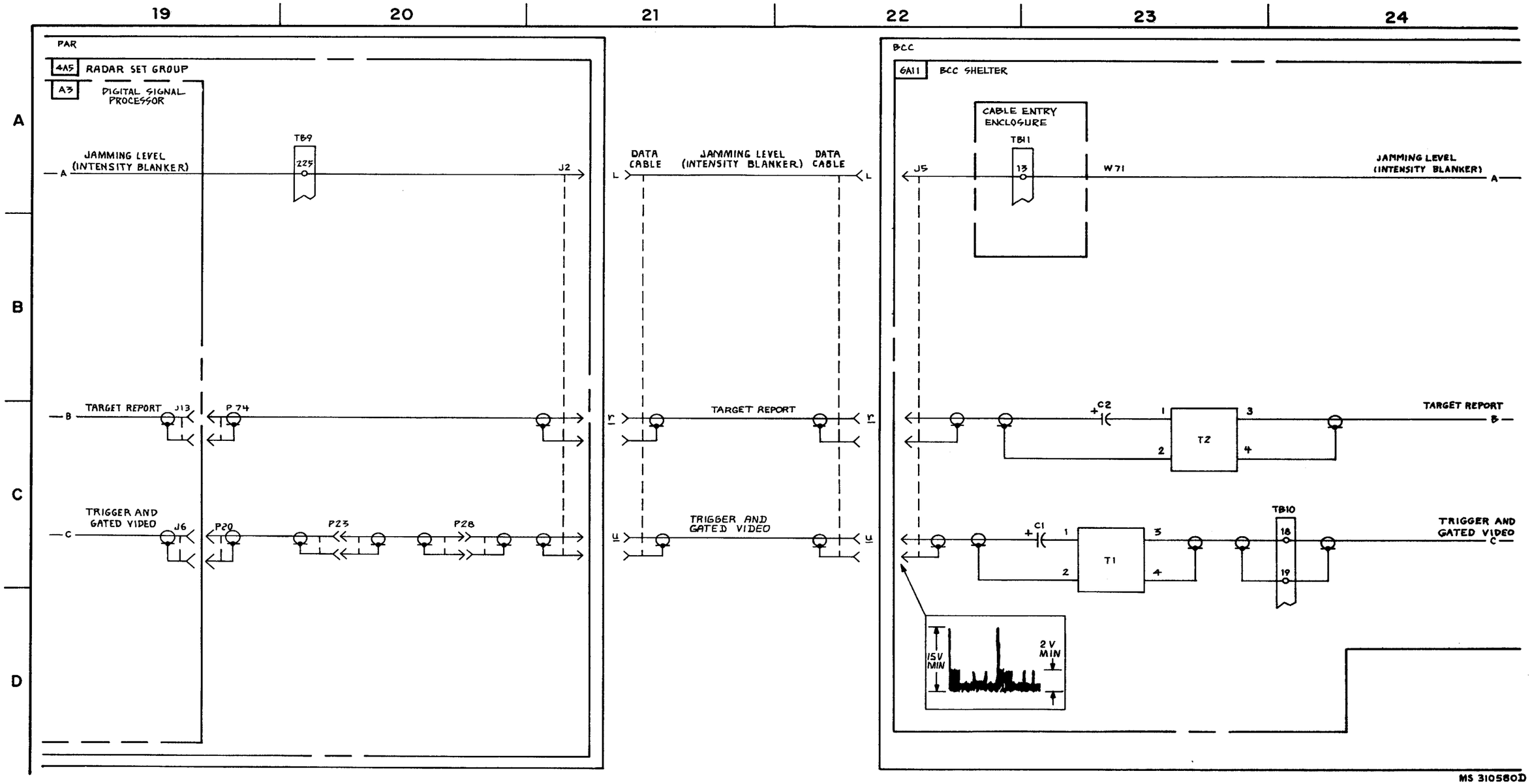


FIGURE 3-12. PAR VIDEO, VIDEO CONTROL, AND SIGNAL STRENGTH -SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 5).

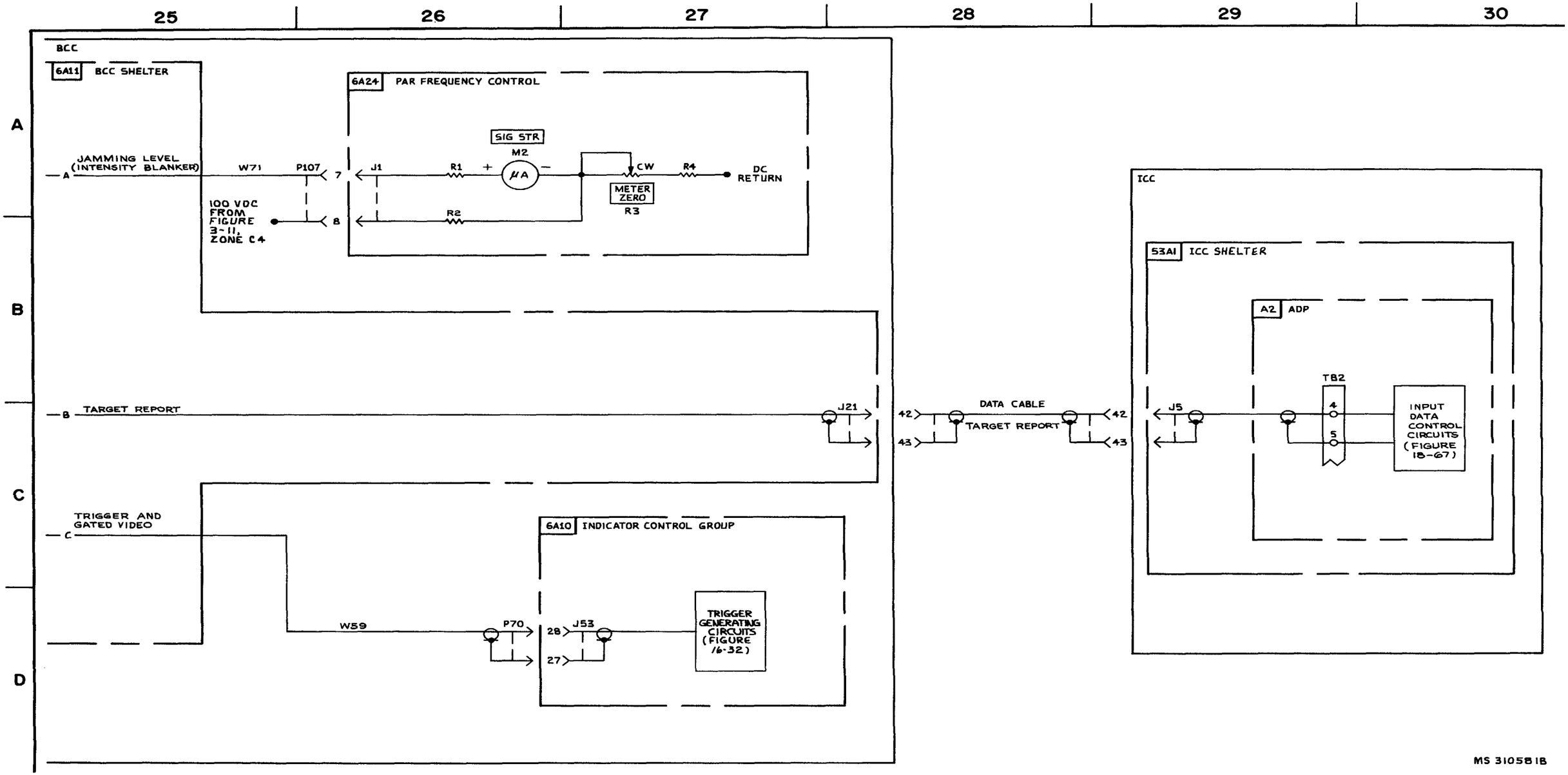


FIGURE 3-12. PAR VIDEO, VIDEO CONTROL, AND SIGNAL STRENGTH -SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 5).

C8

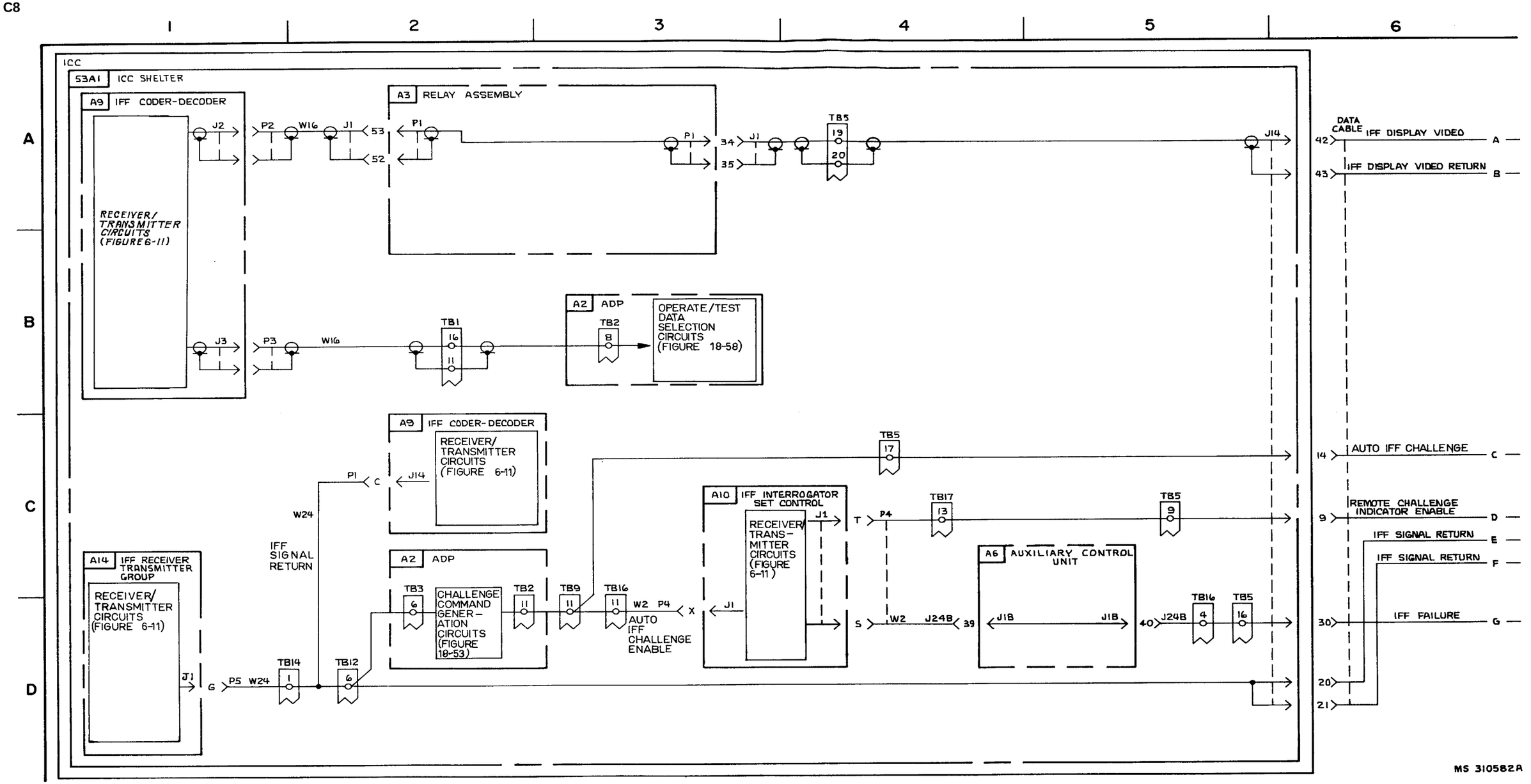


FIGURE 3-13. TARGET IDENTIFICATION- SYSTEM FNCTIONAL DIAGRAM (SHEET 1 OF4).

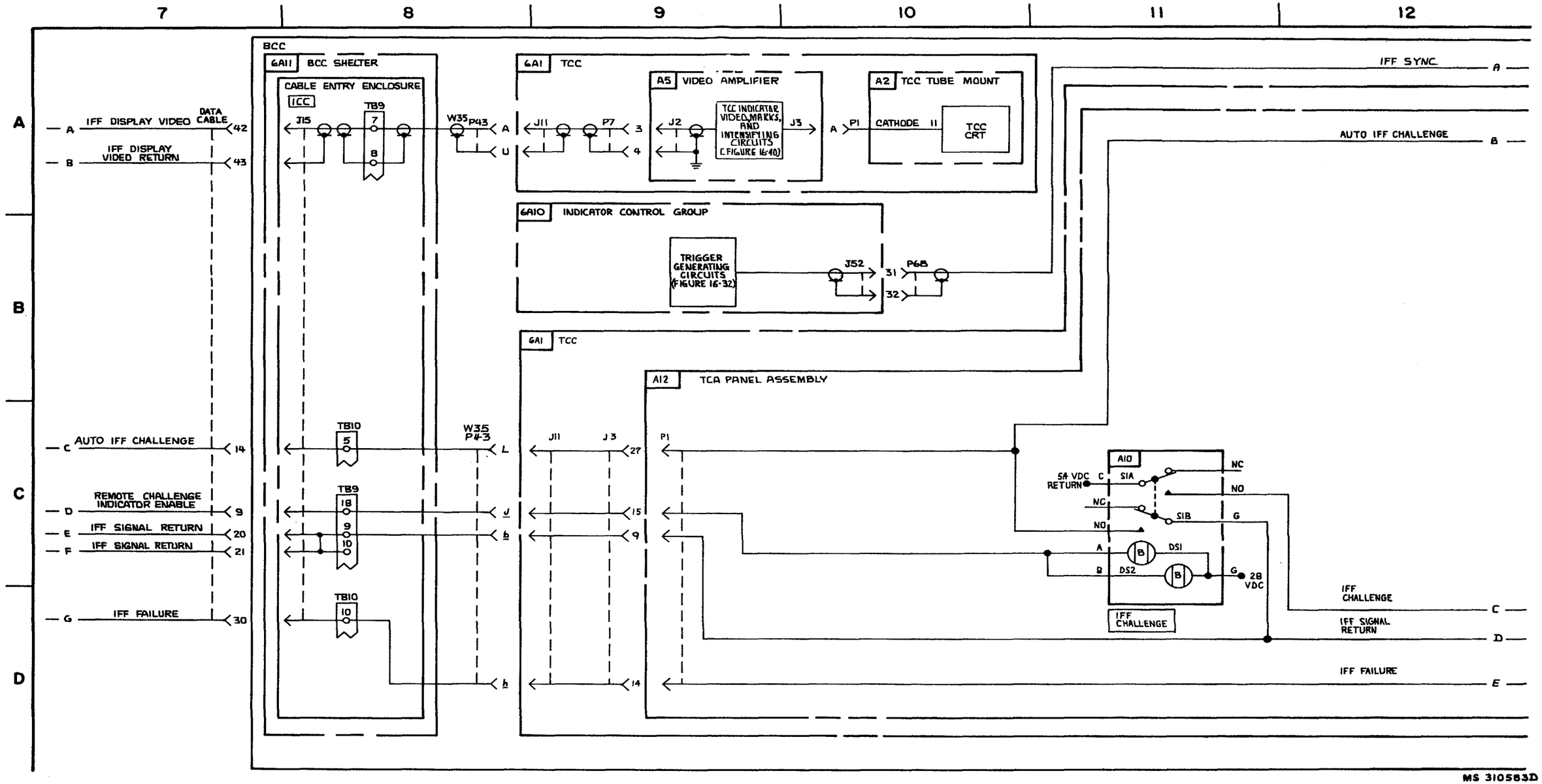


FIGURE 3-13. TARGET IDENTIFICATION- SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF4).

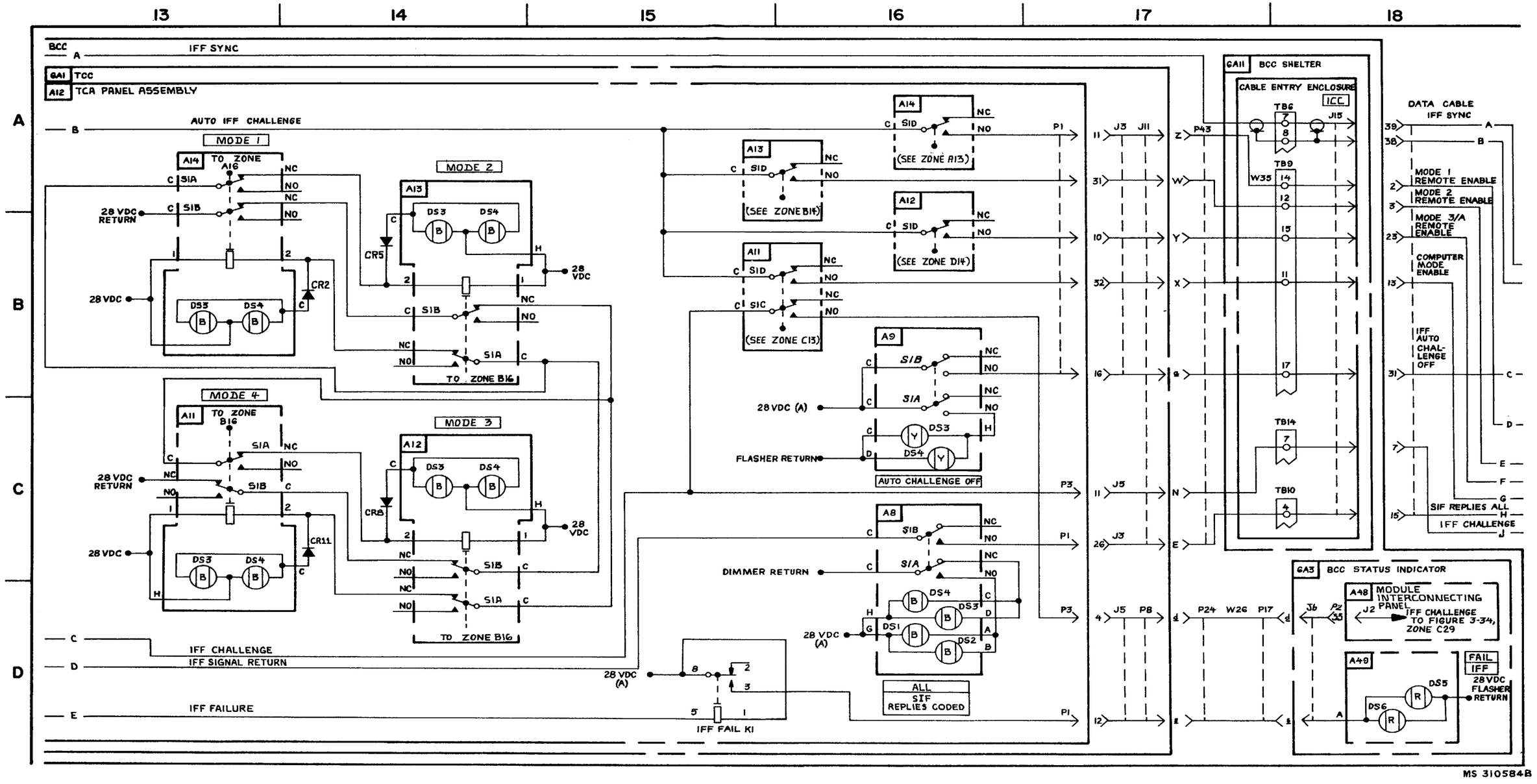


FIGURE 3-13. TARGET IDENTIFICAOTN- SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 4).

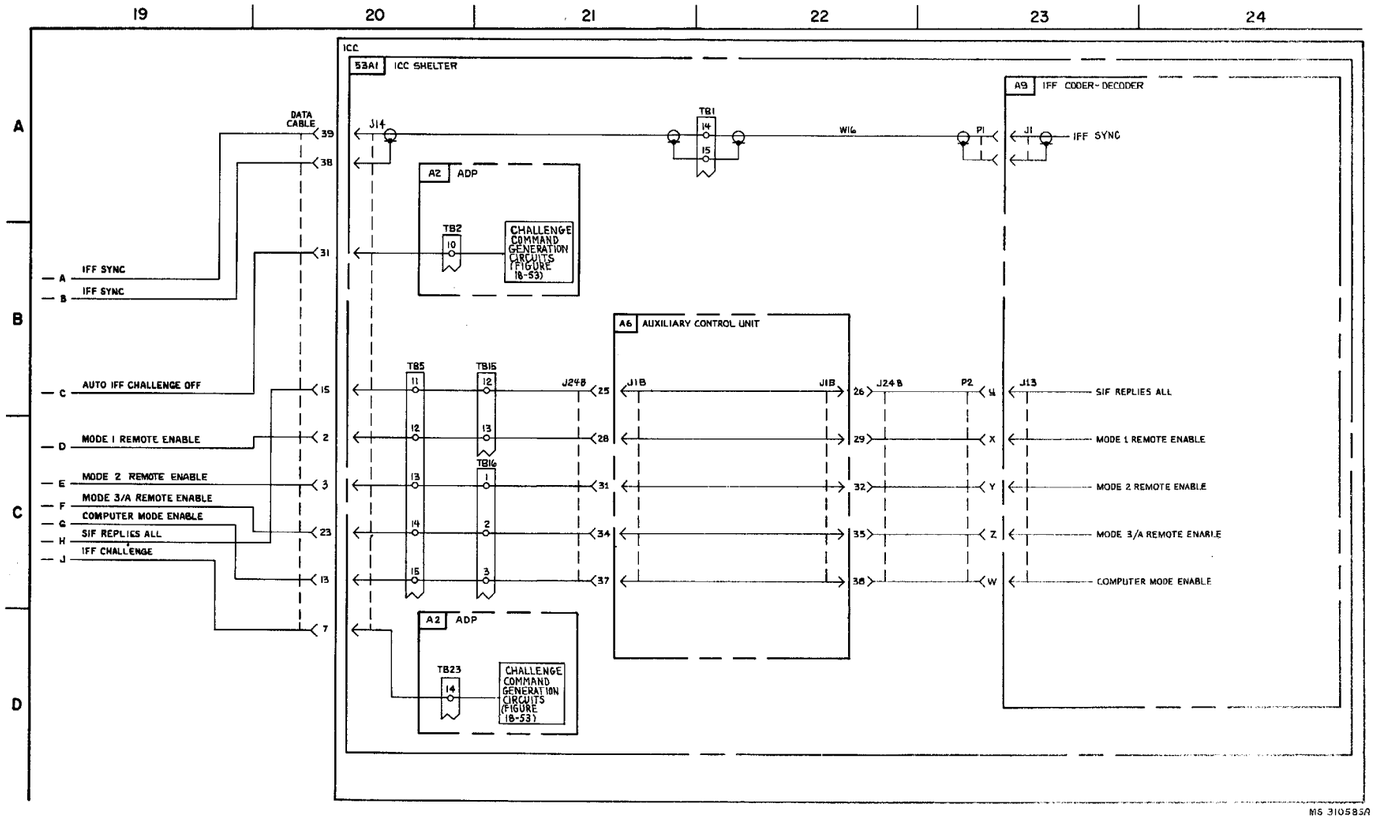


FIGURE 3-13. TARGET IDENTIFICATION - SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 4).

Section III. TARGET SELECTION AND TRACKING

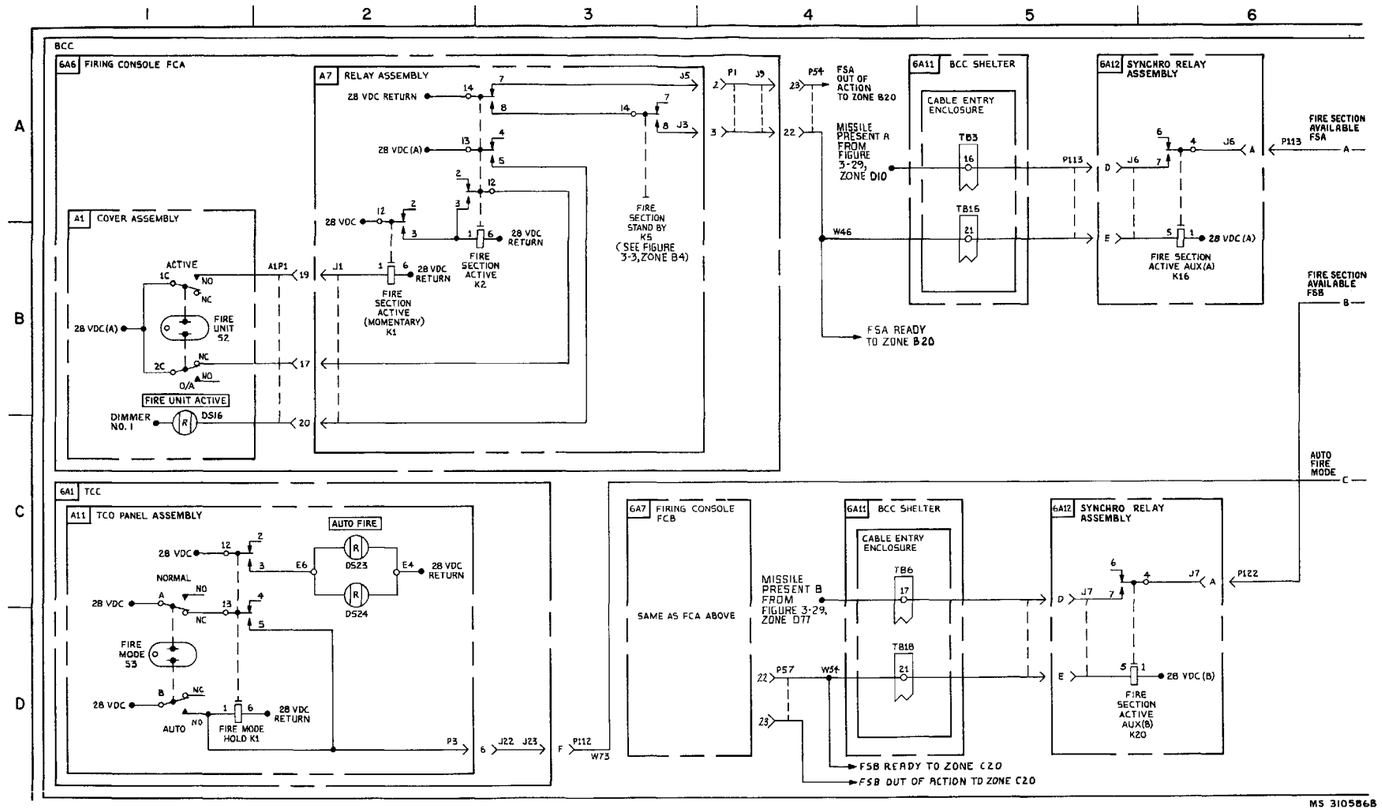


FIGURE 3-14. ADP FIRE MODE AND REQUEST ENGAGEMENT - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 4).

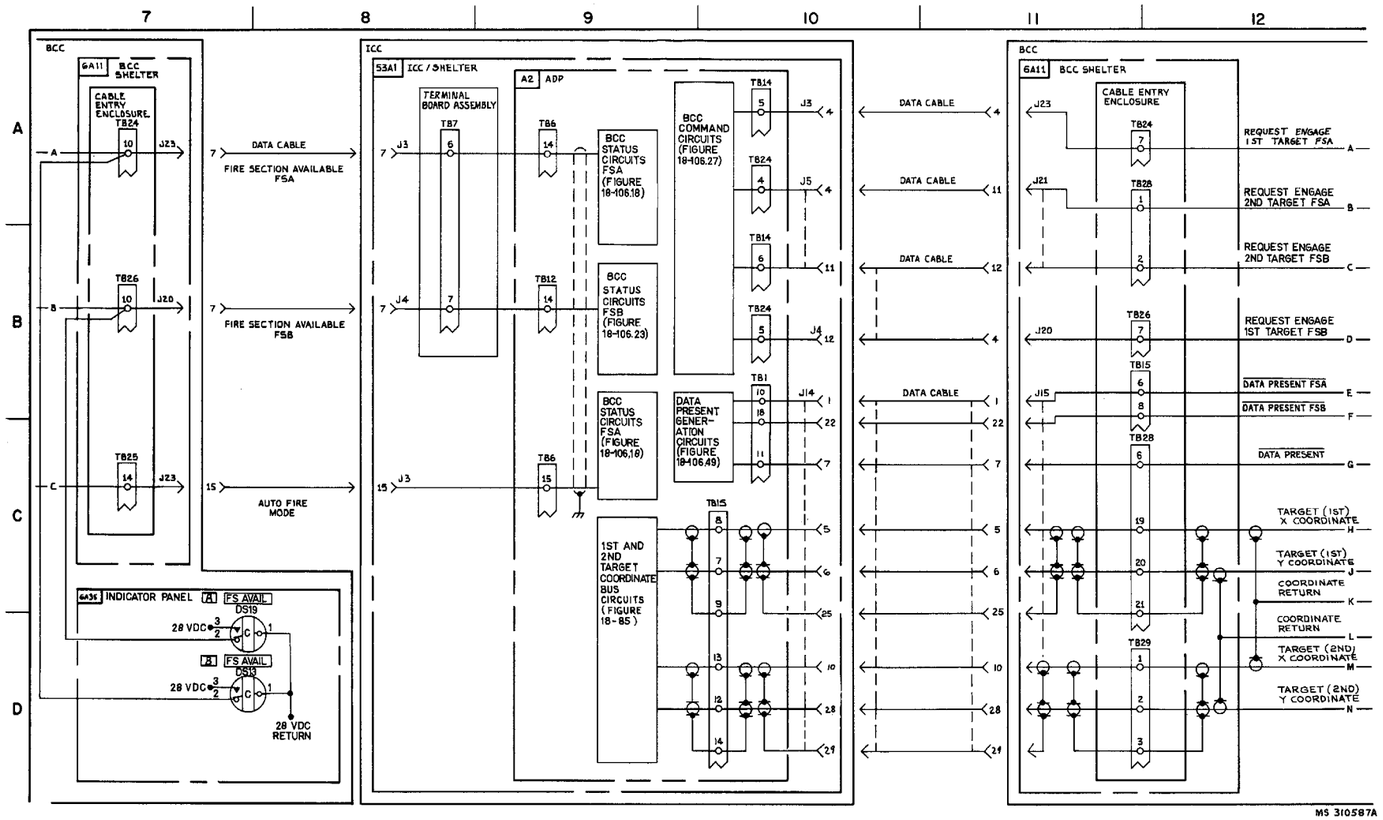


FIGURE 3-14. ADP FIRE MODE AND REQUEST ENGAGEMENT - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 4).

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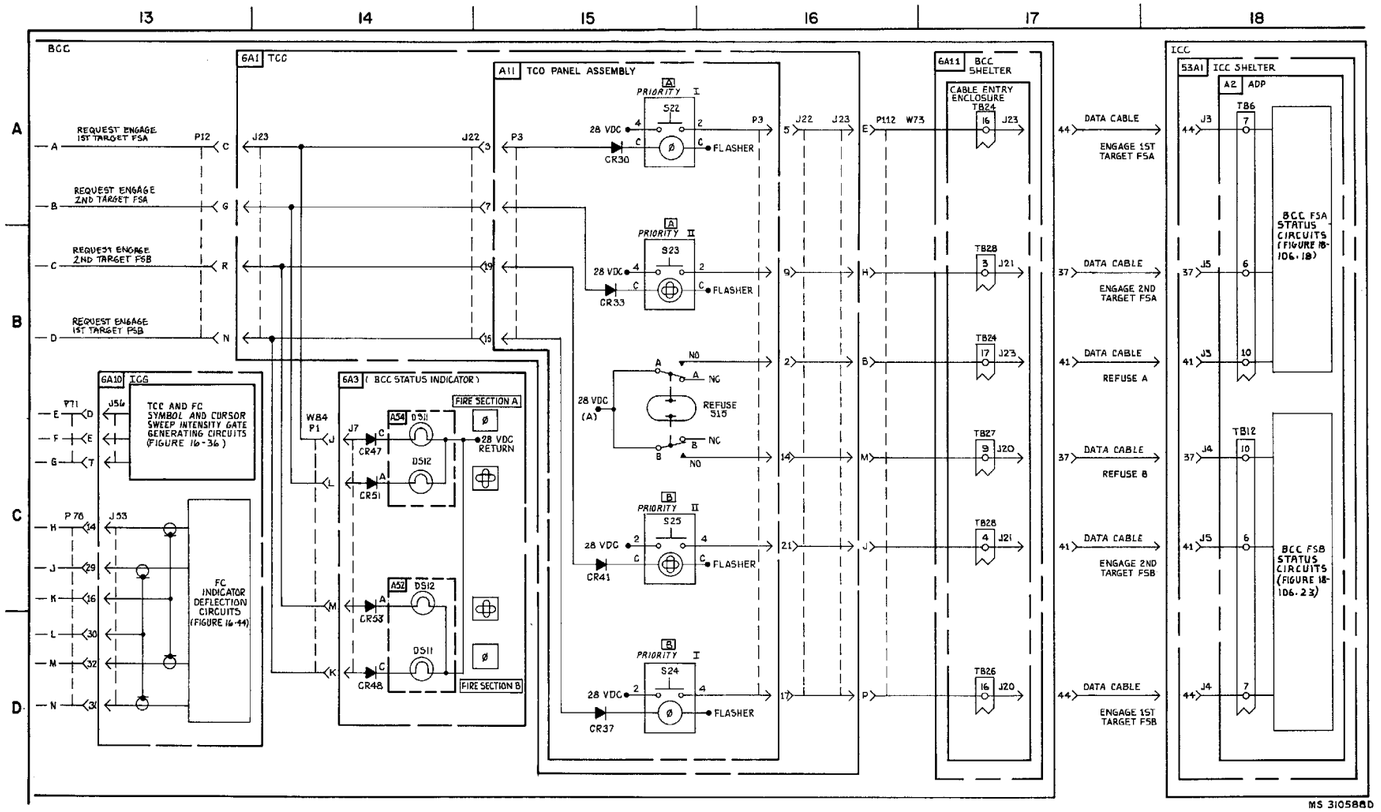

FIGURE 3-14. ADP FIRE MODE AND REQUEST ENGAGEMENT - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 4).

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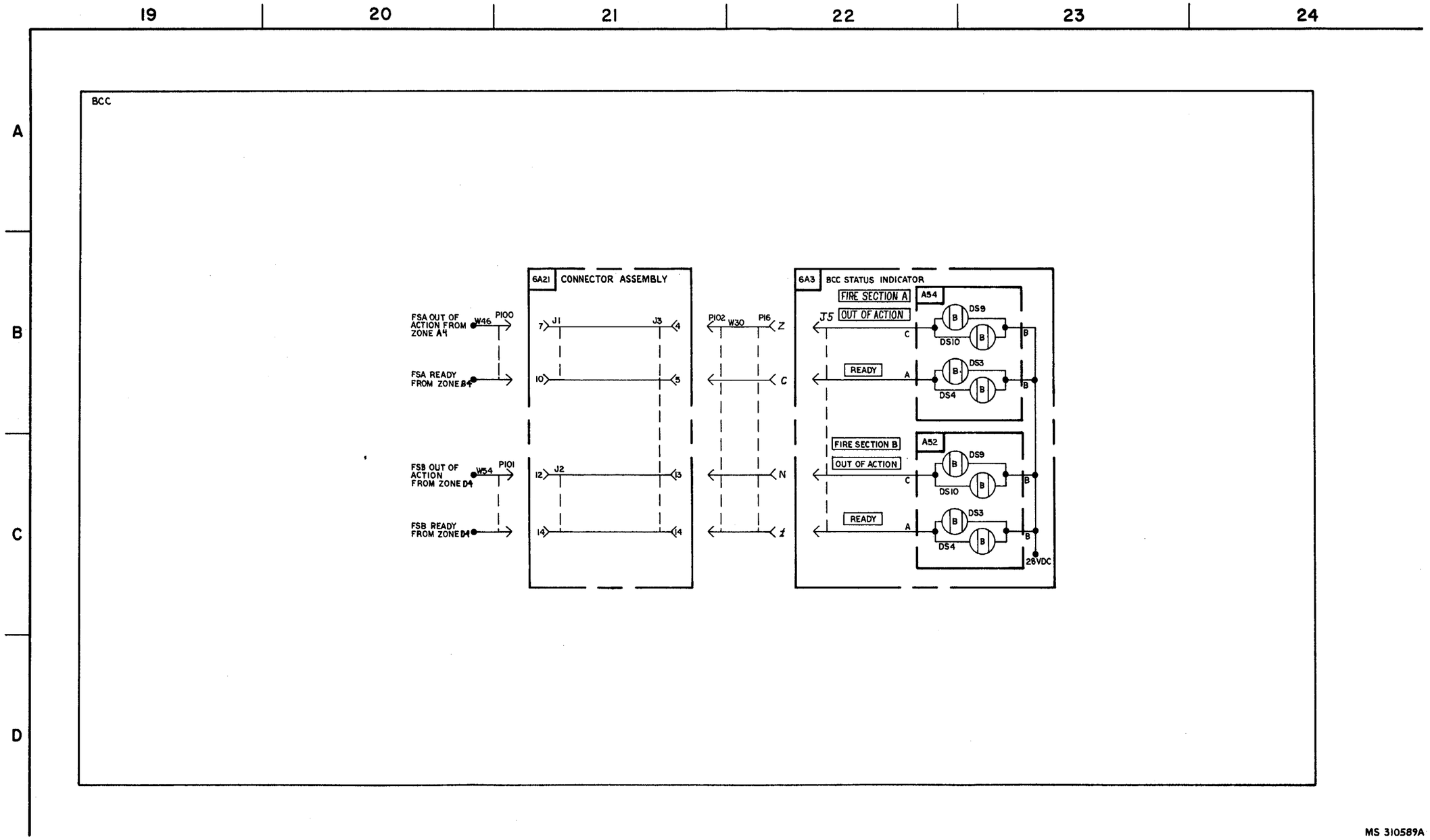

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FIGURE 3-14. ADP FIRE MODE AND REQUEST ENGAGEMENT-SYSTEM FUNCTIONAL DIAGRAM (SHEET4 OF 4)

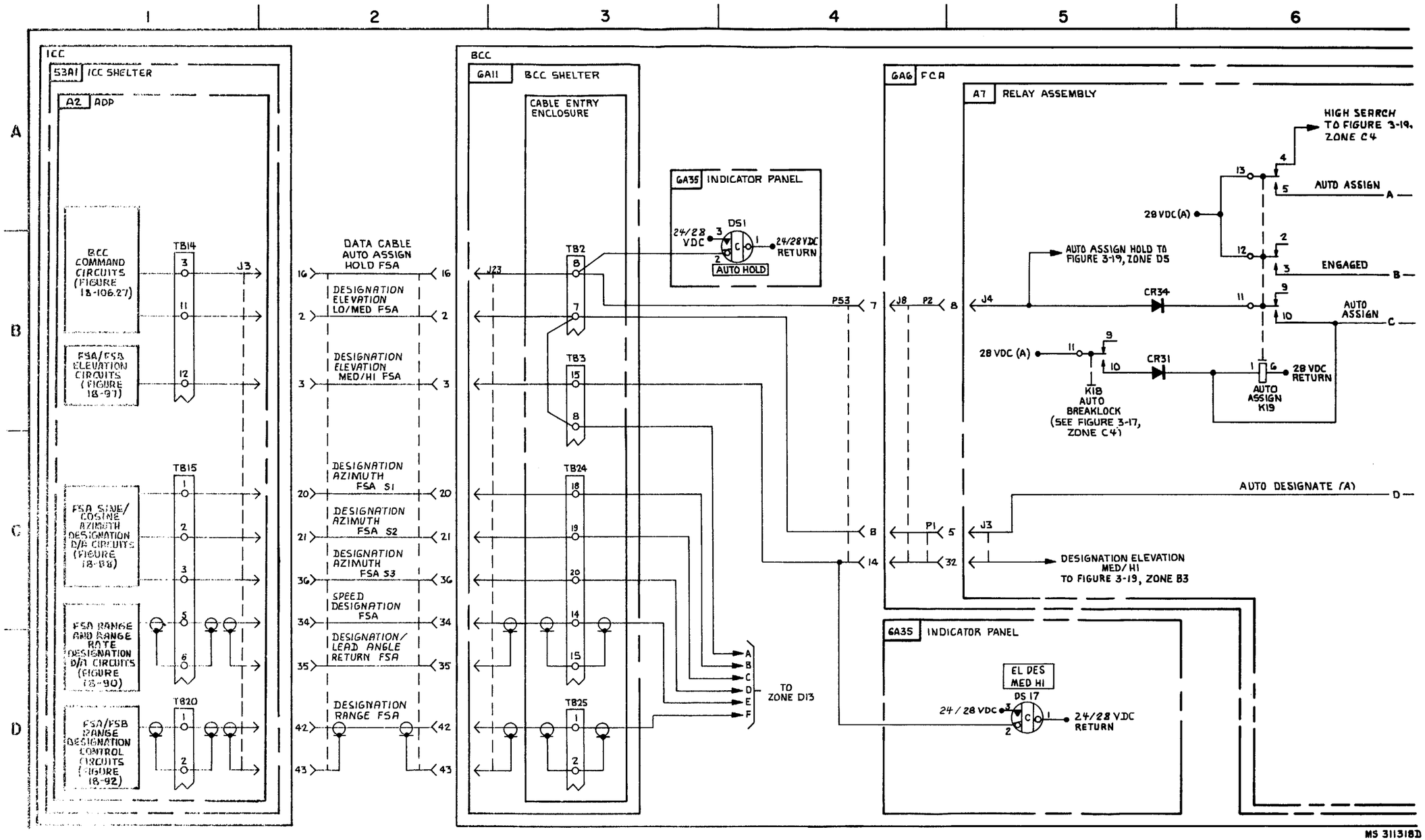

FIGURE 3-15. HPIR AUTO ANTENNA SEARCH-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 10).

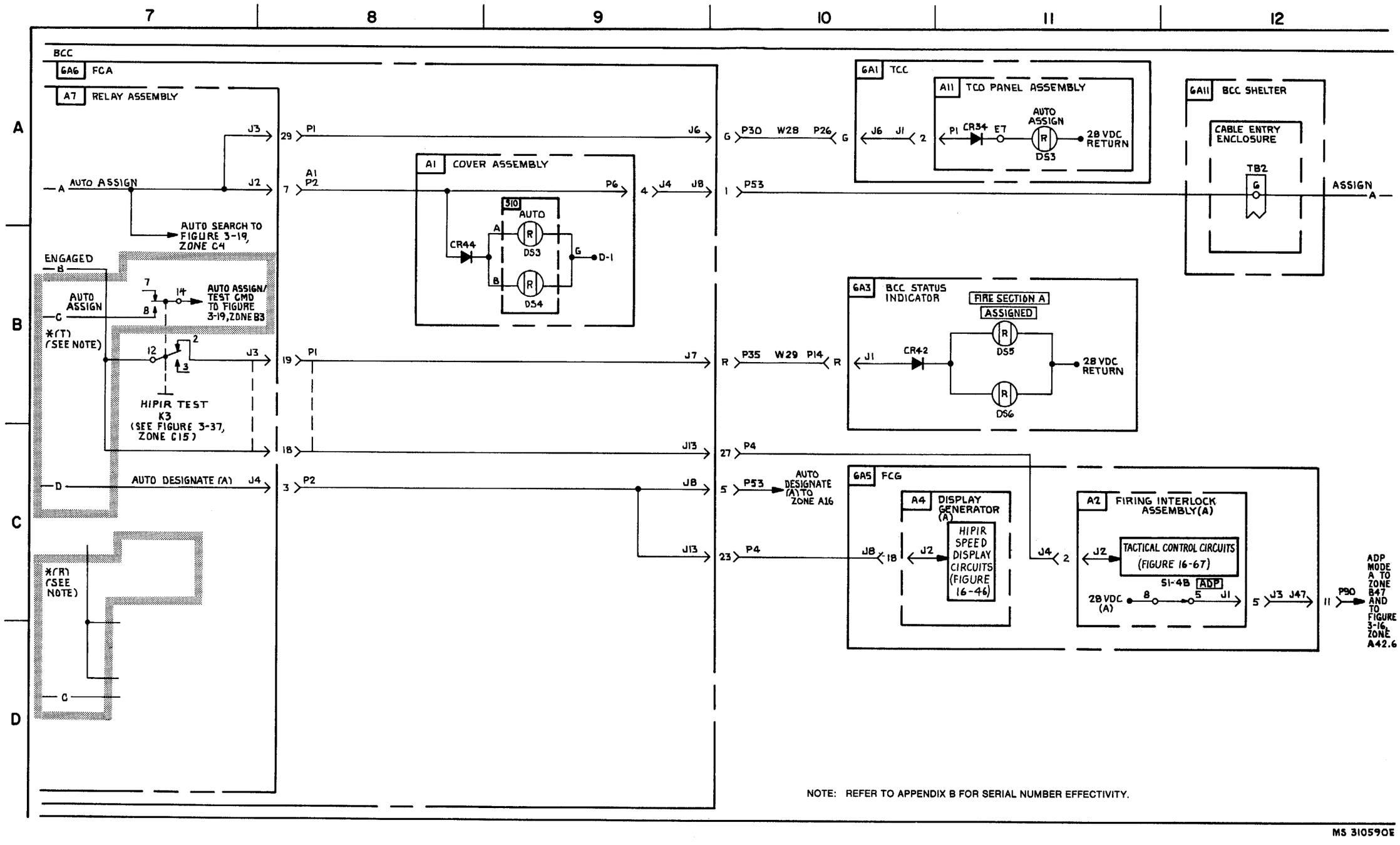

FIGURE 3-15. HIPIR AUTO ANTENNA SEARCH-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 10)

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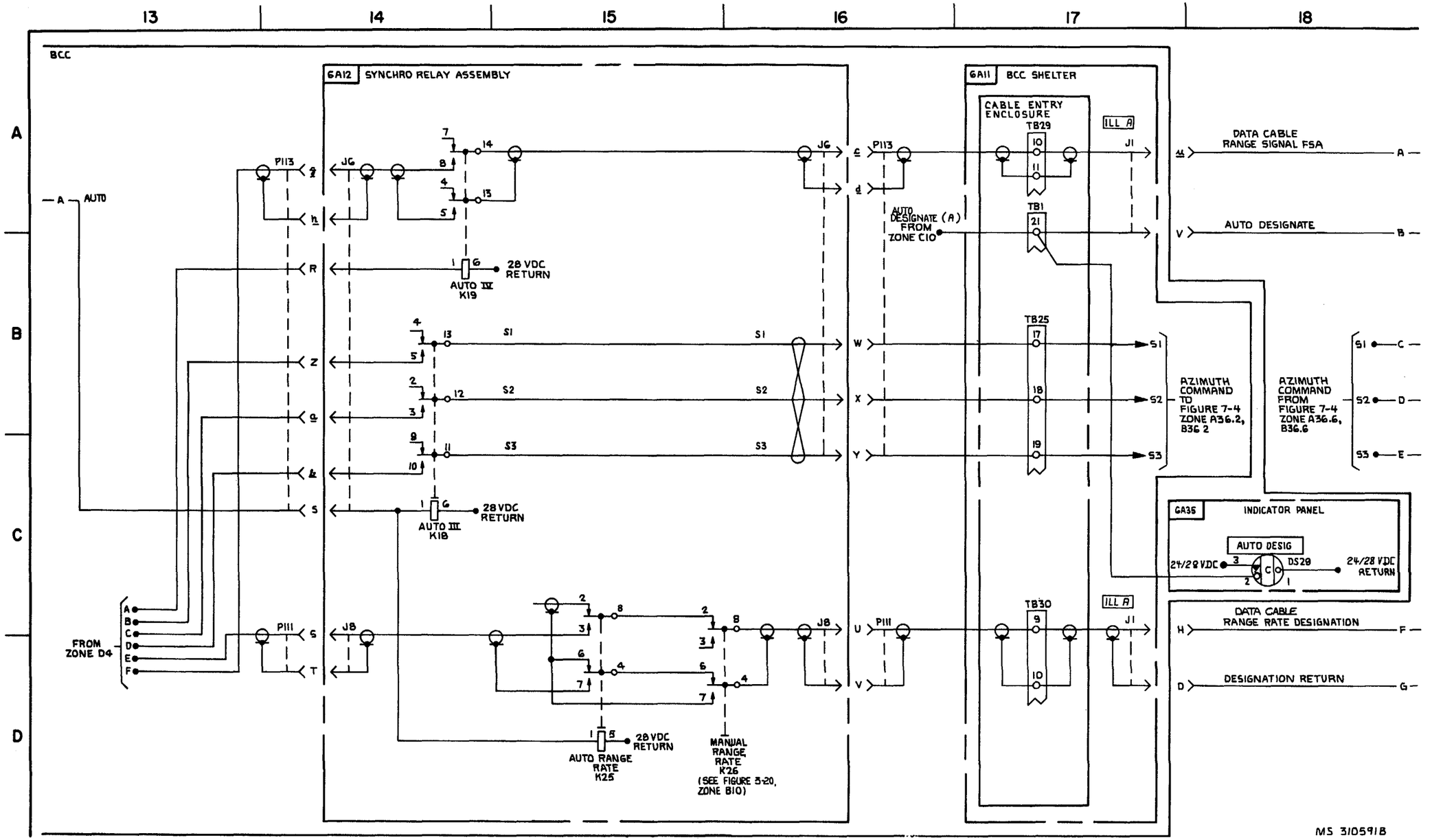


FIGURE 3-15. HIPIR AUTO ANTENNA SEARCH-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 10).

3-69 (3-70 blank)

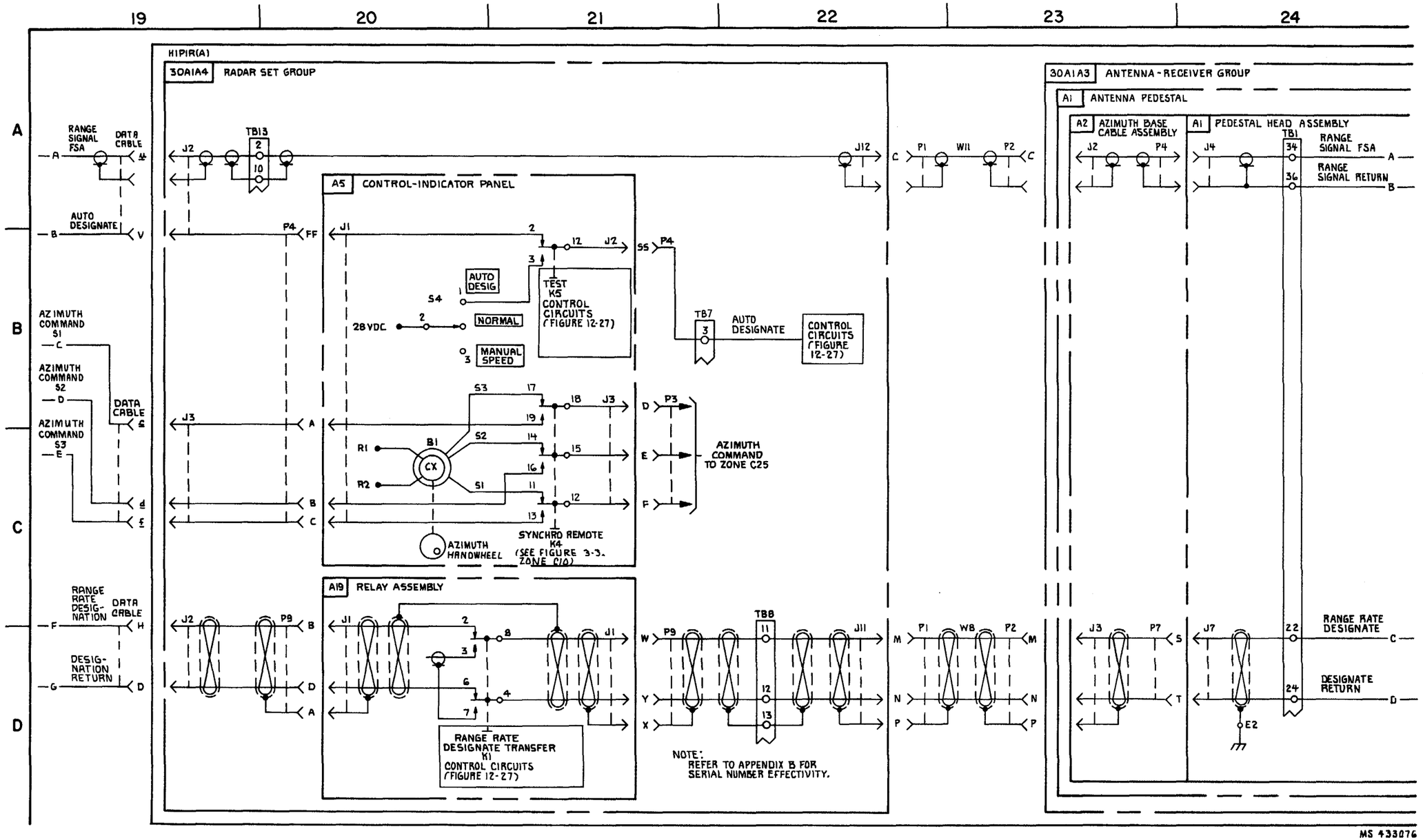
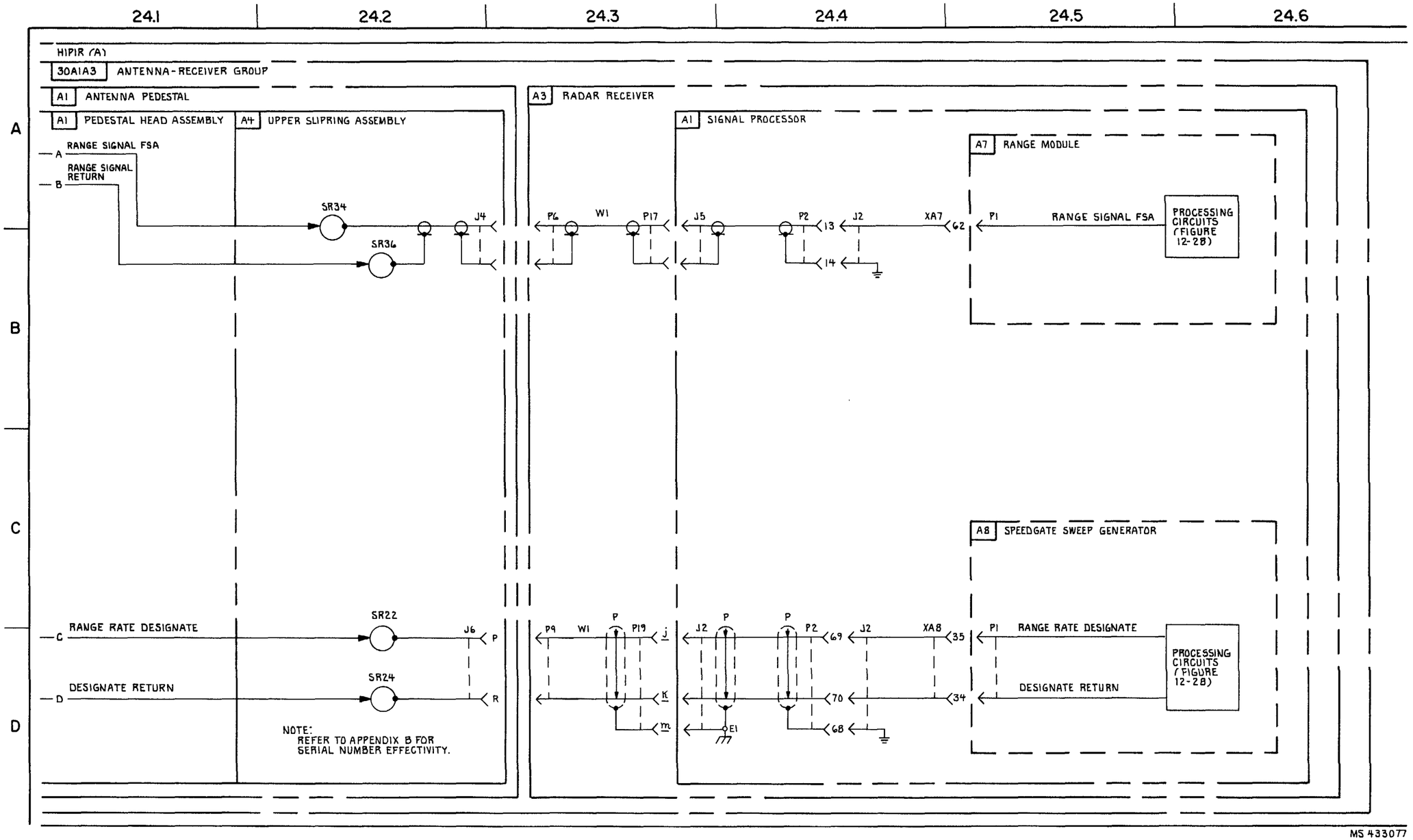


FIGURE 3-15. HIPIR AUTO ANTENNA SEARCH (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 10).*

3-71/3-72 Blank



FIGUTE 3-15. HIPIR AUTO ANTENNA SEARCH(T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4.1 OF 10)*

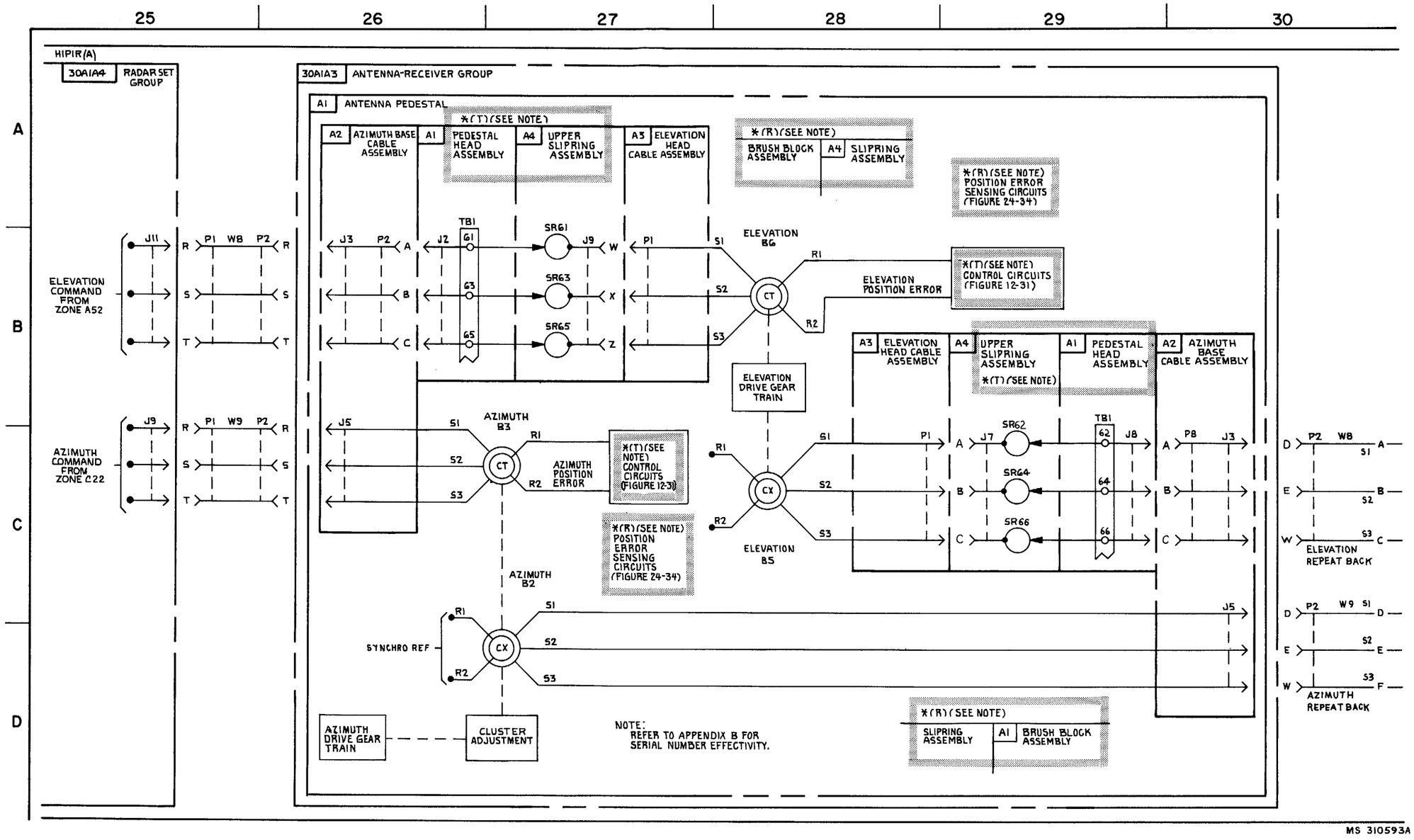


FIGURE 3-15. HIPIR AUTO ANTENNA SEARCH-SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 10).

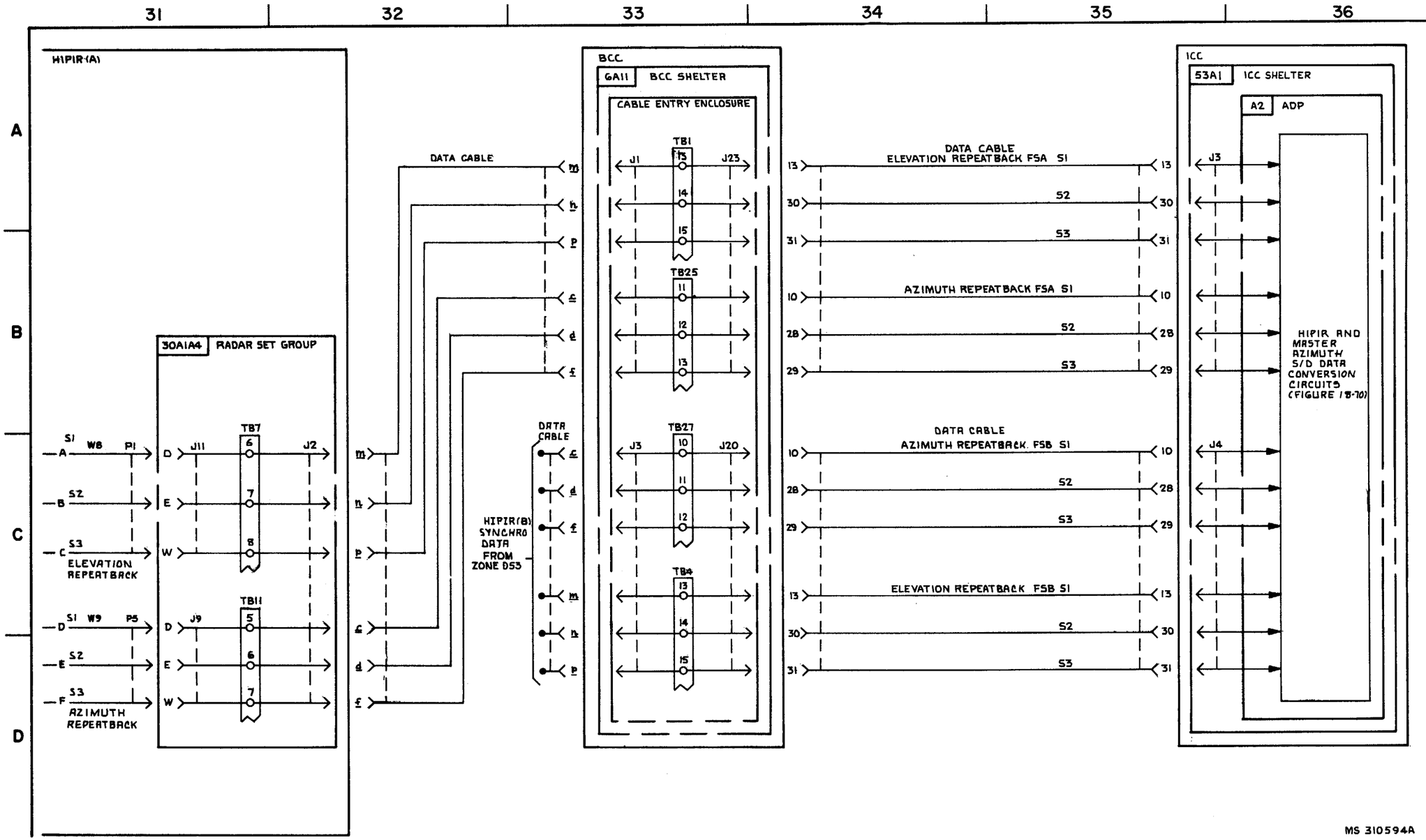


FIGURE 3-15. HIPIR IUTO ANTENNA SEARCH -SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 10).

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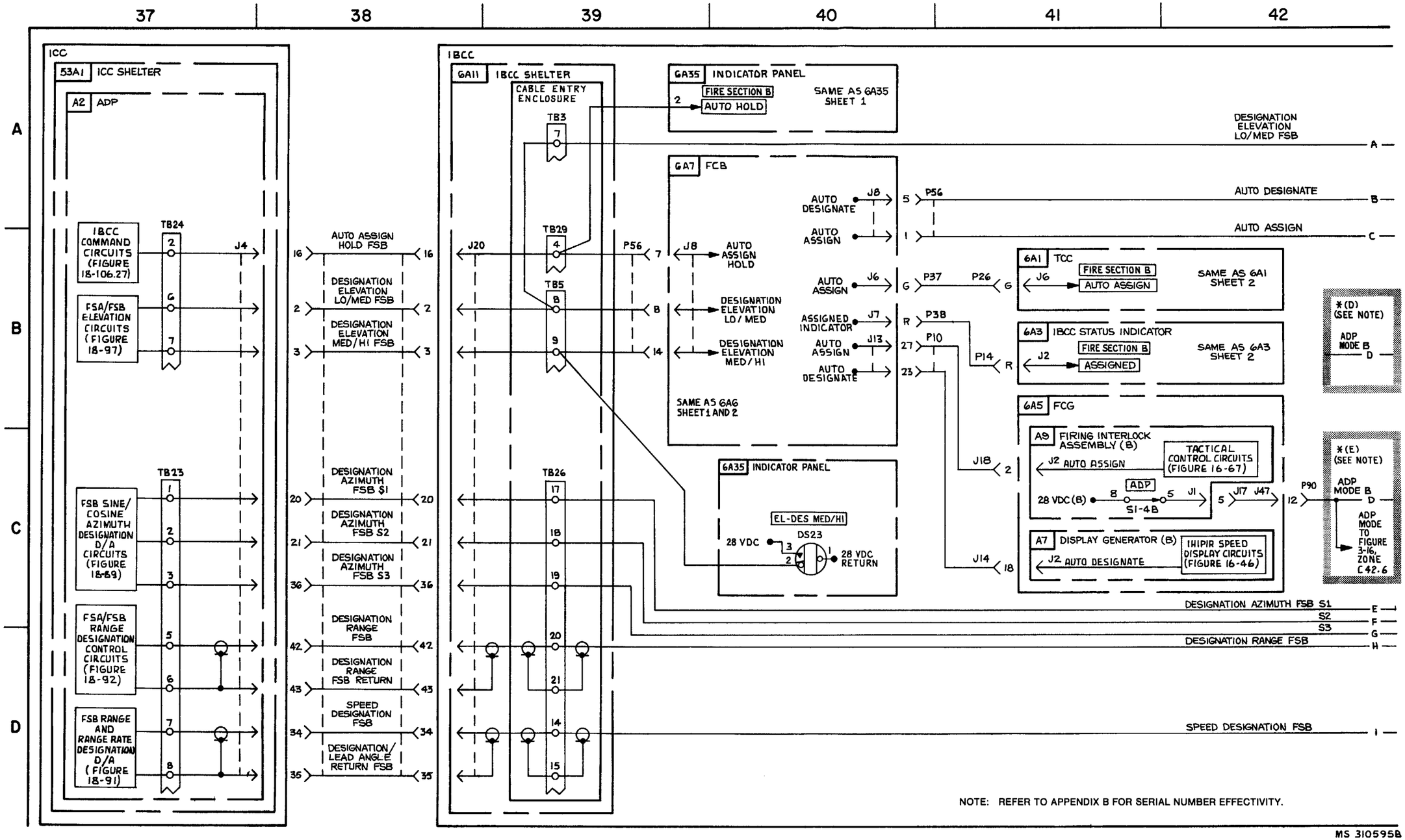

FIGURE 3-15. IHIPIR AUTO ARTENNA SEARCH-SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 10).

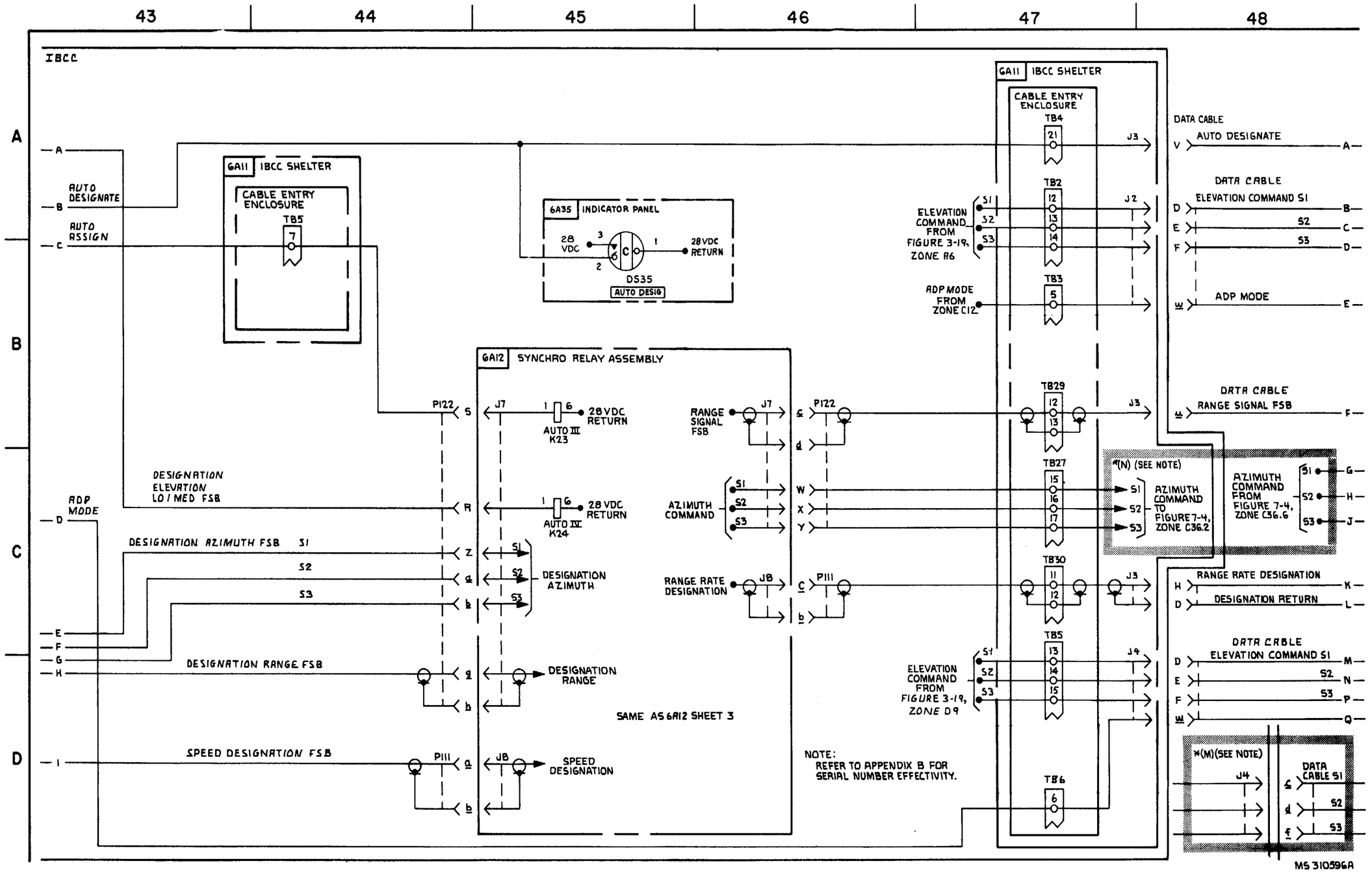

FIGURE 3-15. IHIPIR AUTO ANTENUA 5EARC-SfYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 10).

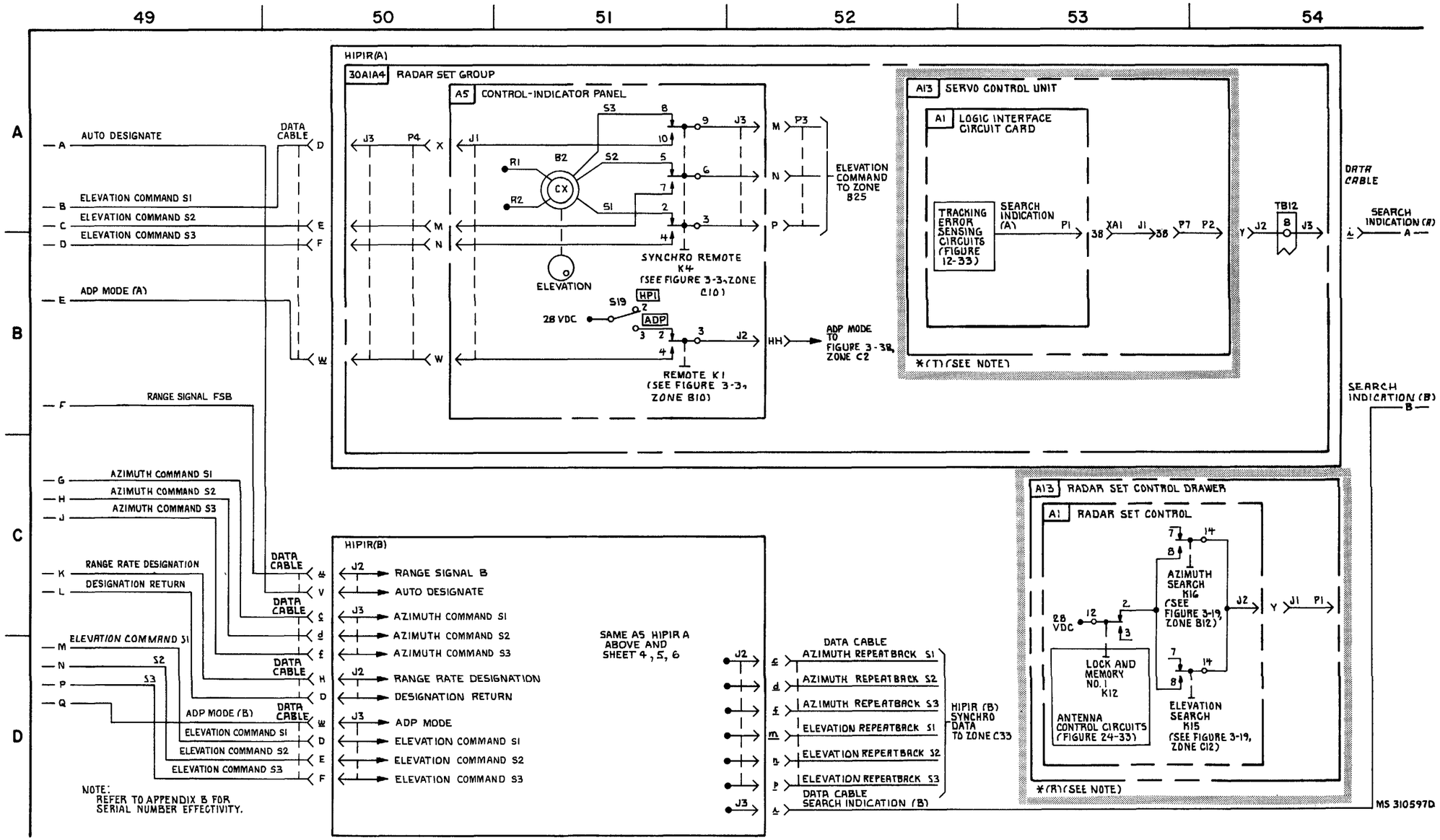

FIGURE 3-15. HIPIR AUTO ANTENNA SEARCH-SYSTEM FUNCTIONAL DIAGRAM (SHEET 9 OF 10).

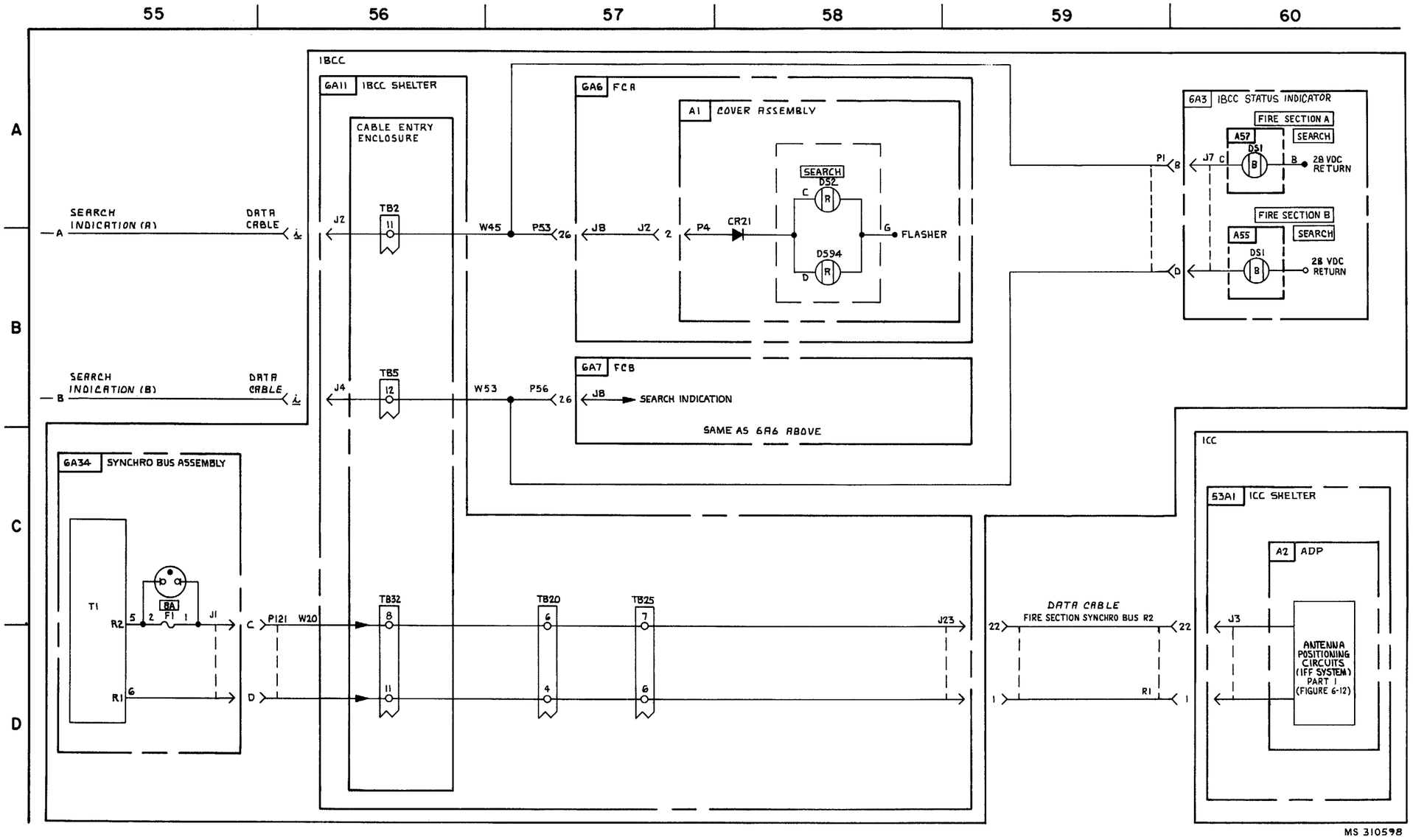

FIGURE 3-15. IHIPIR AUTO ANTENNA SEARCH-SYSTEM FUNCTIONAL DIAGRAM (SHEET 10 OF 10).

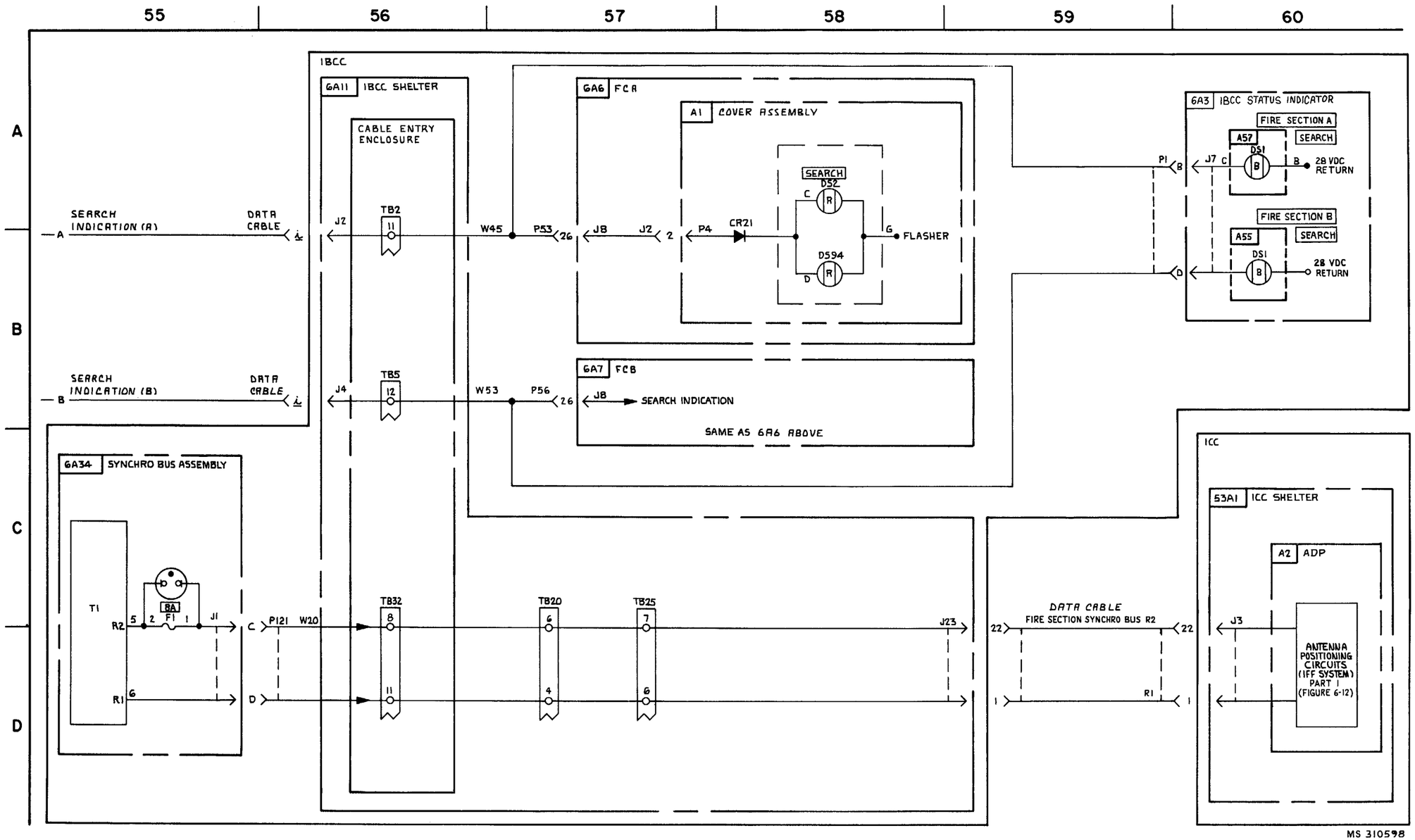

*FIGURE 3-16. HIPIR LOCK AND TARGET INFORMATION * (T)(SEE NOTE)- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 8).*

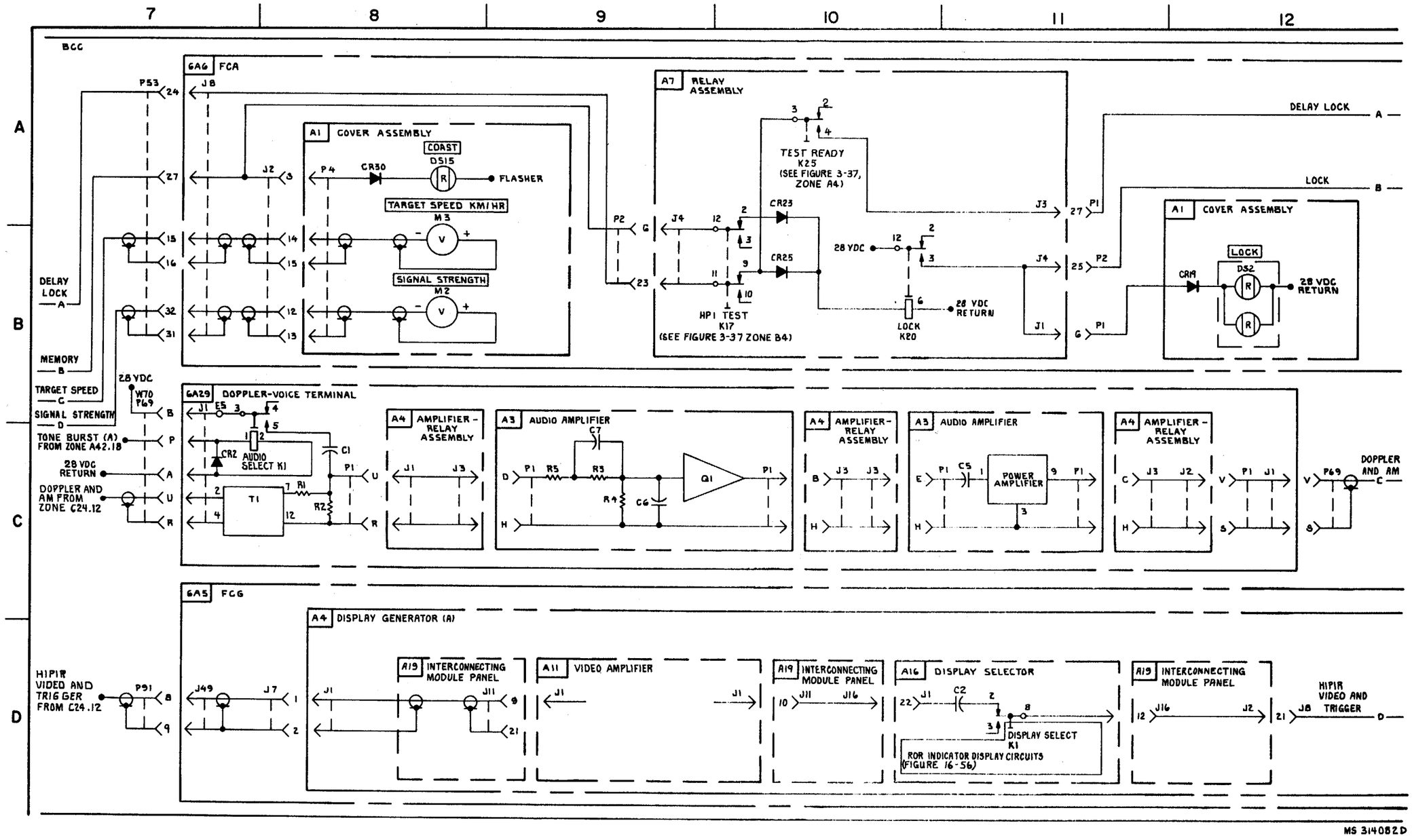

FIGURE. 3-16 HIPIR LOCK AND TARGET INFORMATION - SYSTEM FUNGTIONAL. DIAGRAM (SHEET 2 OF 8).

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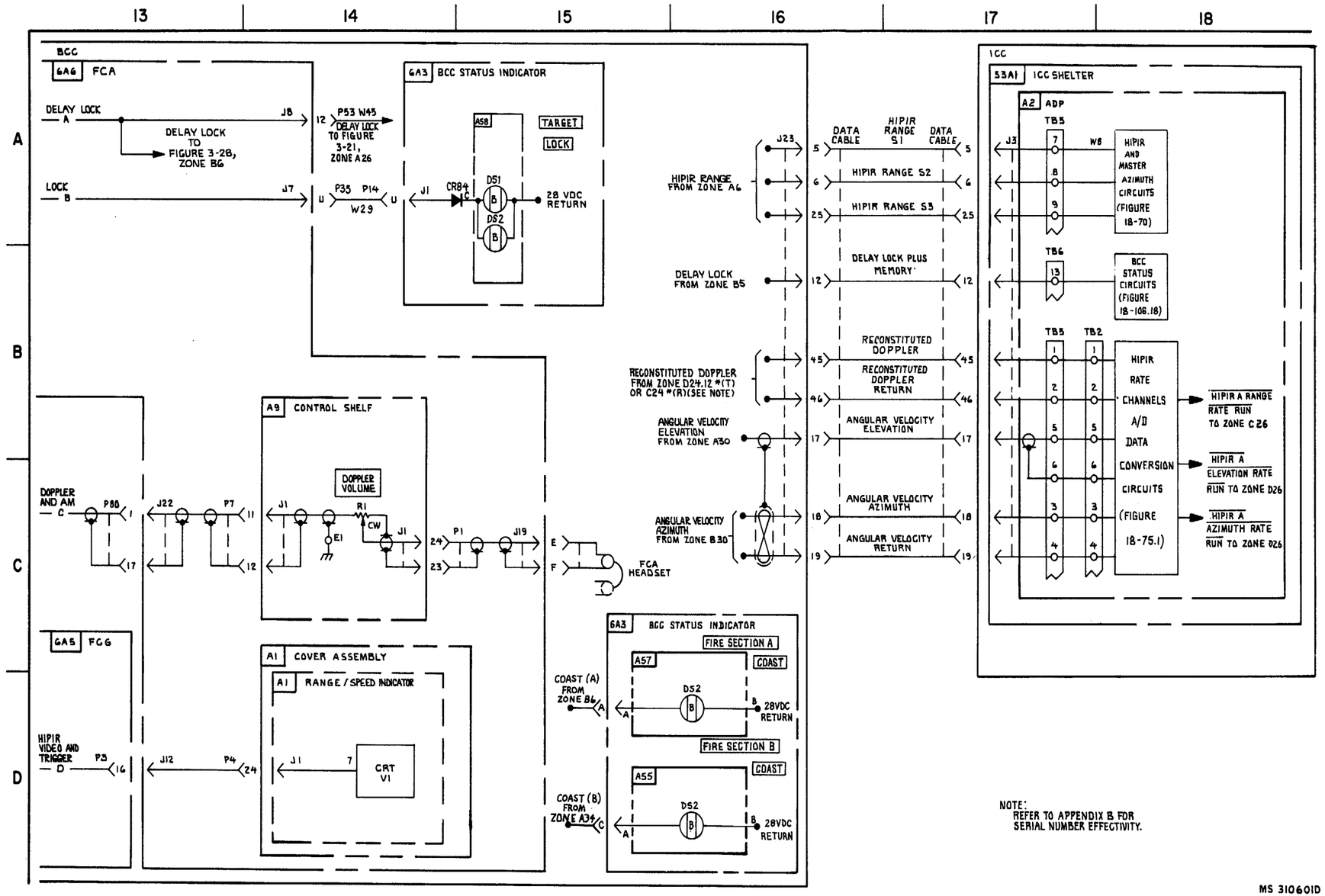

FIGURE 3-16. HIPIR LOCK AND TARGT INFORMATION- SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 8).

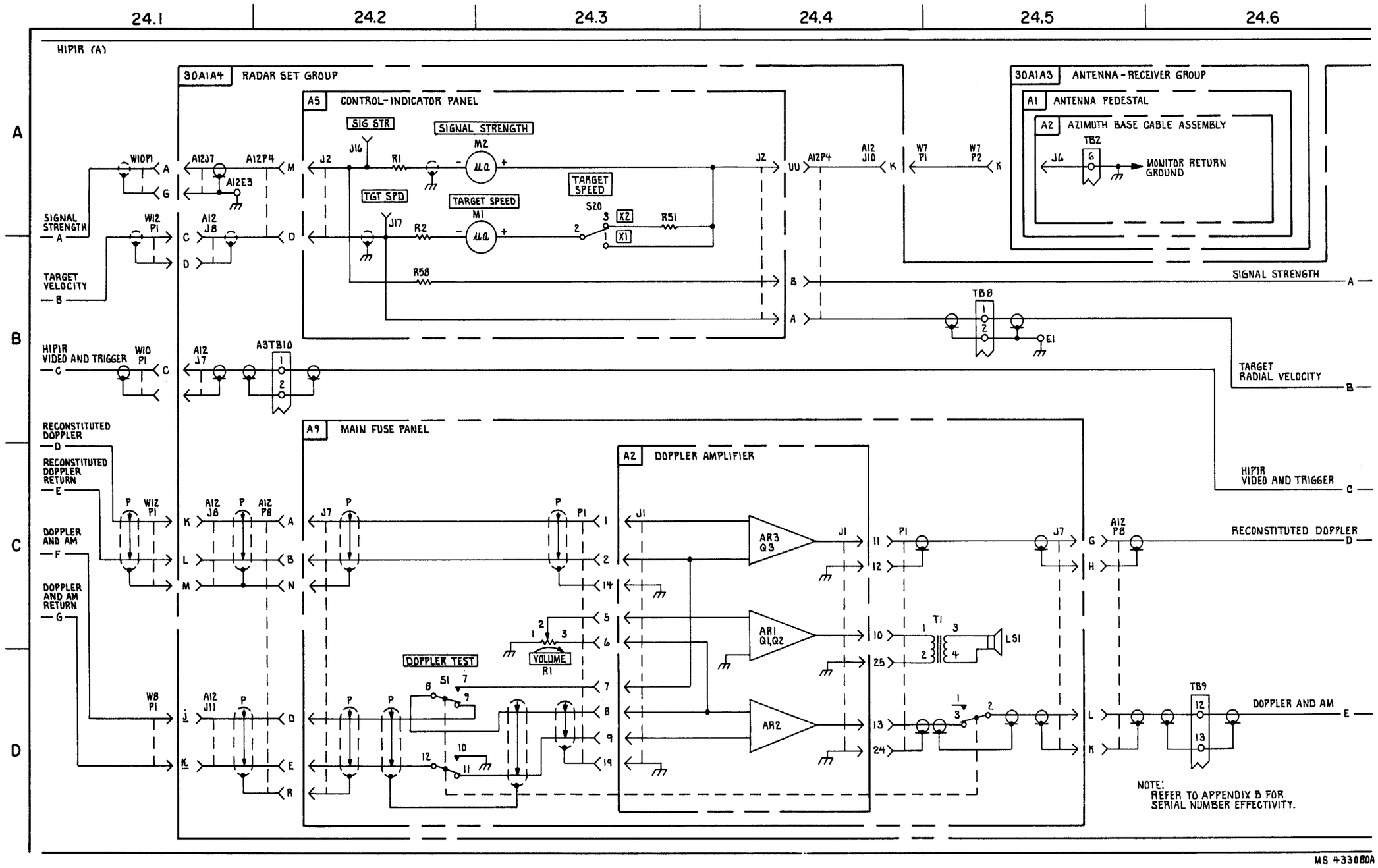

*FIGURE 3-16. HIPIR LOCK AND TARGET INFORMATION * (T) (SEE NOTE)- SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 8).*

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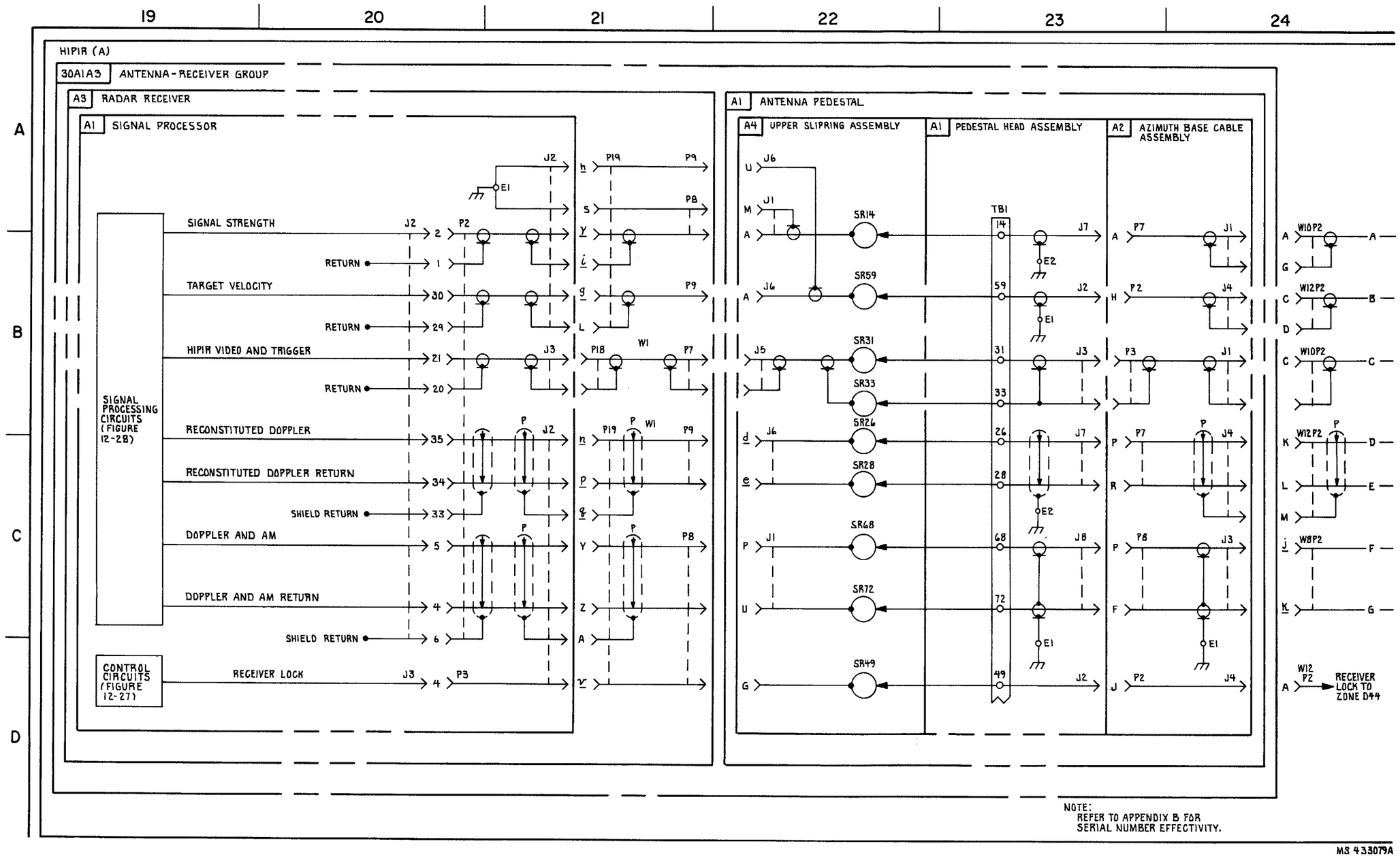


*FIGURE 3-16. HIPIR LOCK AND TARGET INFORMATION *(T) (SEE NOTE)- SYSTEM FUNCTIONAL DIAGRAM (SHEET 4.1 OF 8).*

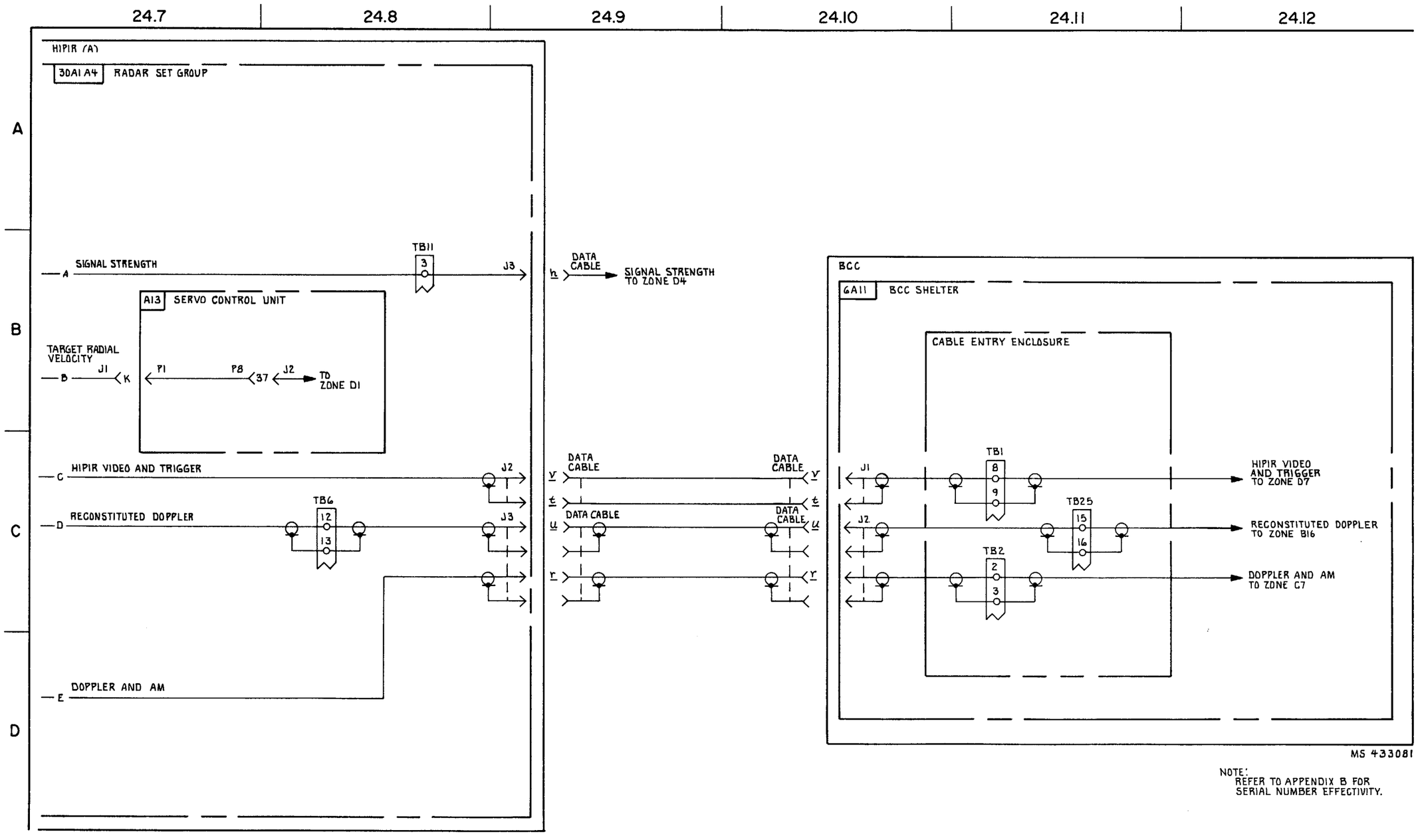


*FIGURE 3-16. HIPIR LOCK AND TARGET INFORMATION * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4.2 OF 8).*

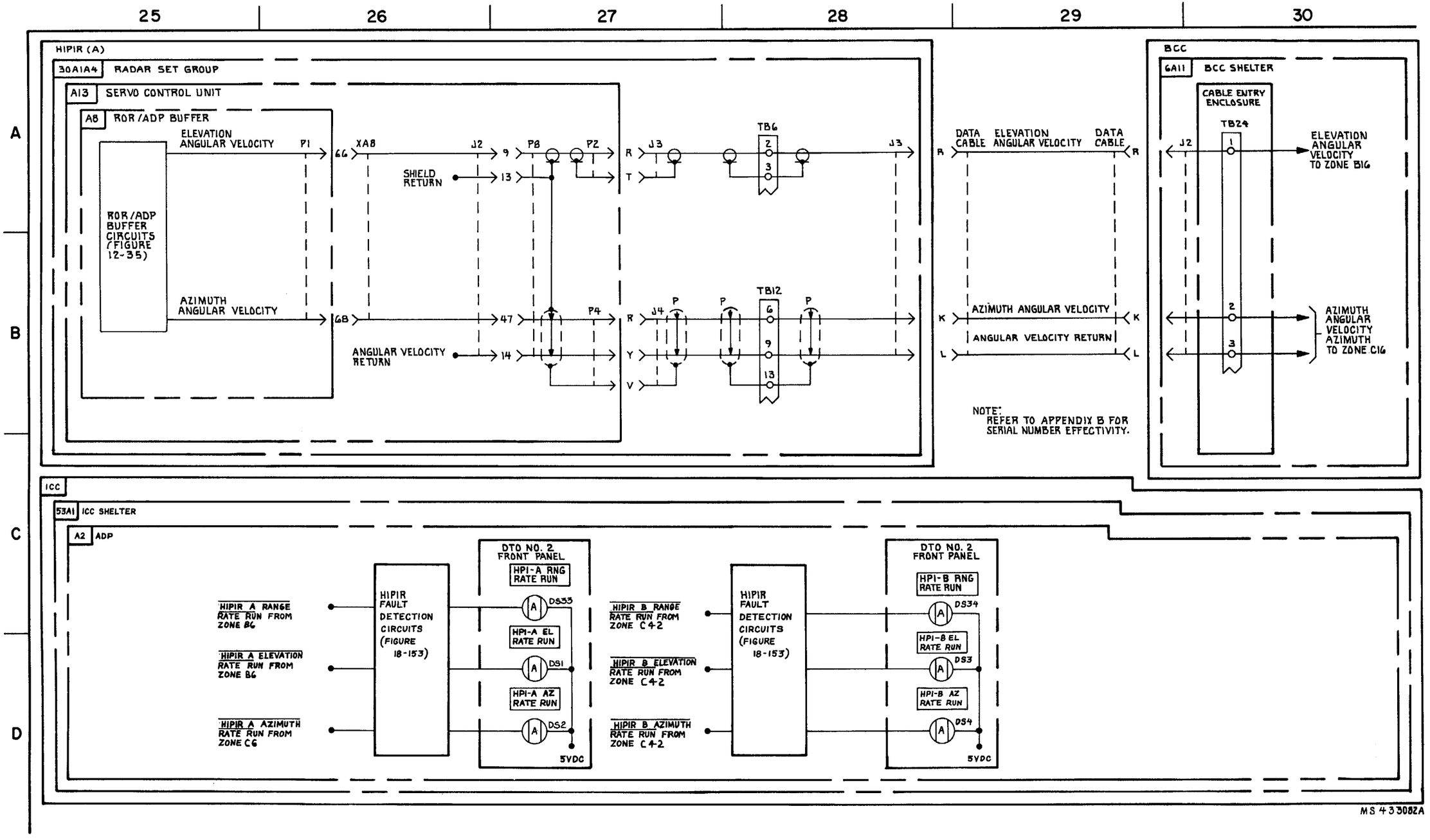


*FIGURE 3-16. HIPIR LOCK AND TARGET. INFORMATION * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 8).*

3-91/3-92 Blank

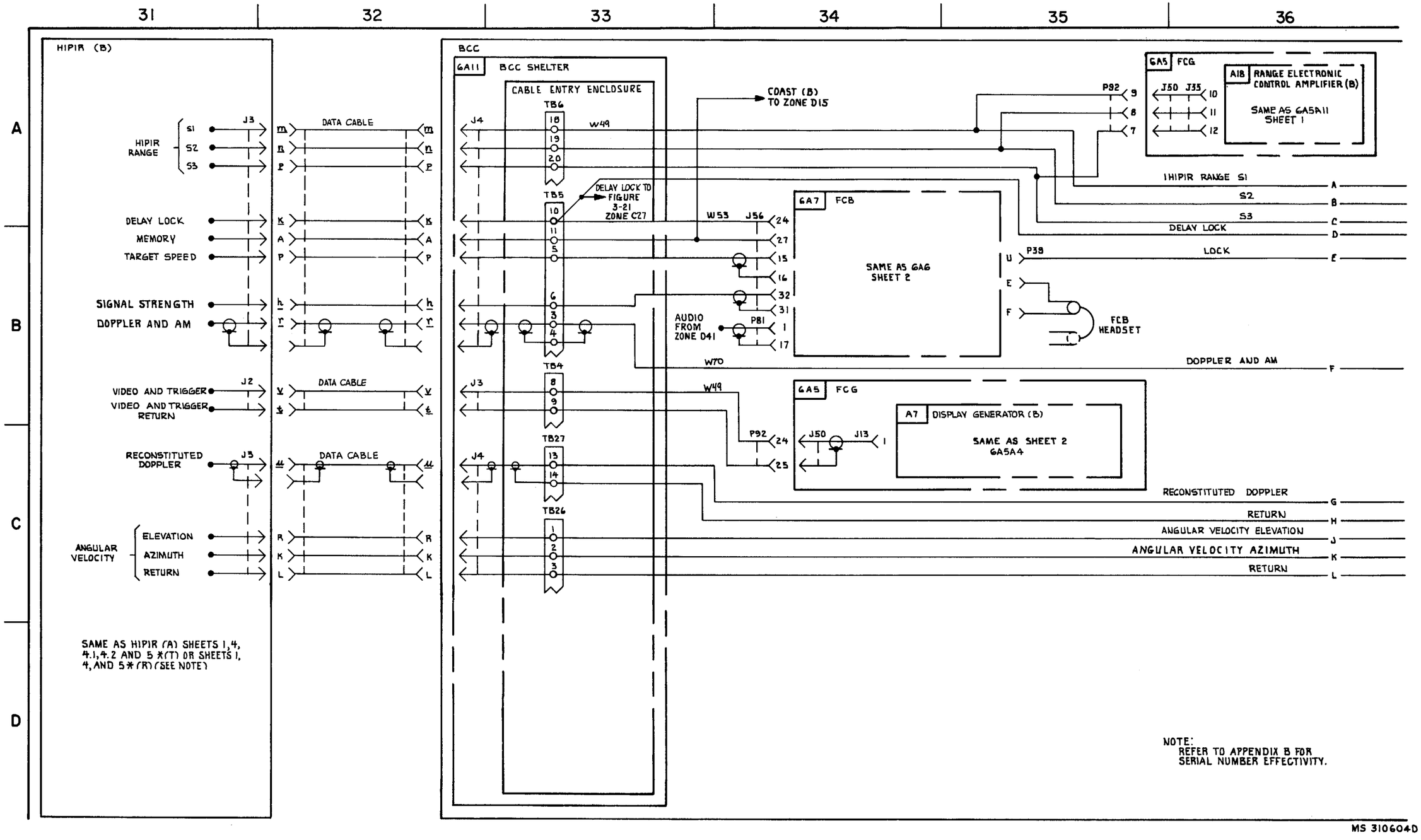


FIGURE 3-16. HIPIR LOCK AND TARGET-INFORMATION -SYSTEM FUNCTIONAL DAGRAM (SHEET 6 OF 8).

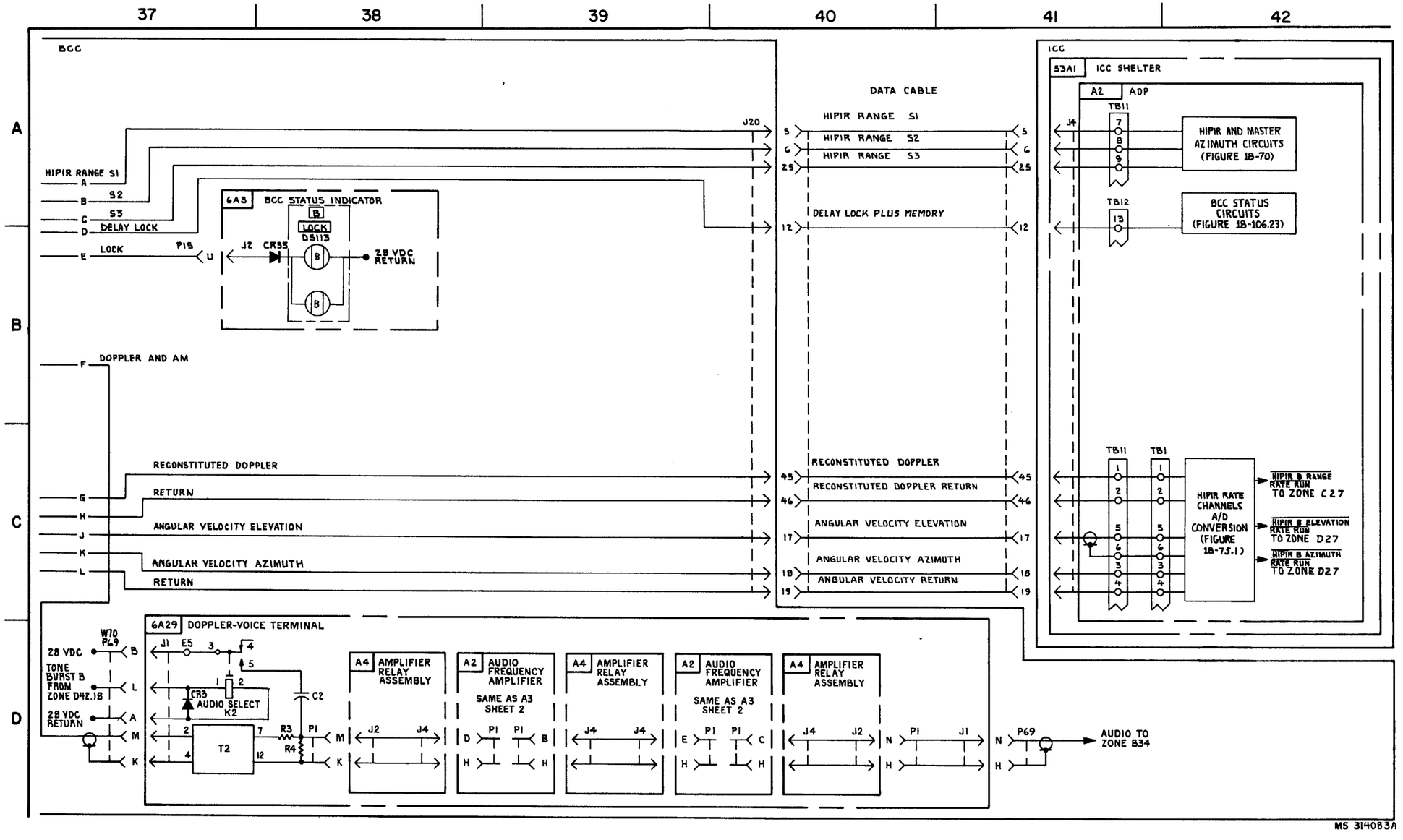


FIGURE 3-16. HIPIR LOCK AND TARGET MNFORMATION-SYSTEM FUNCTIONAL DIAGIAM (SHEET 7 OF 8).

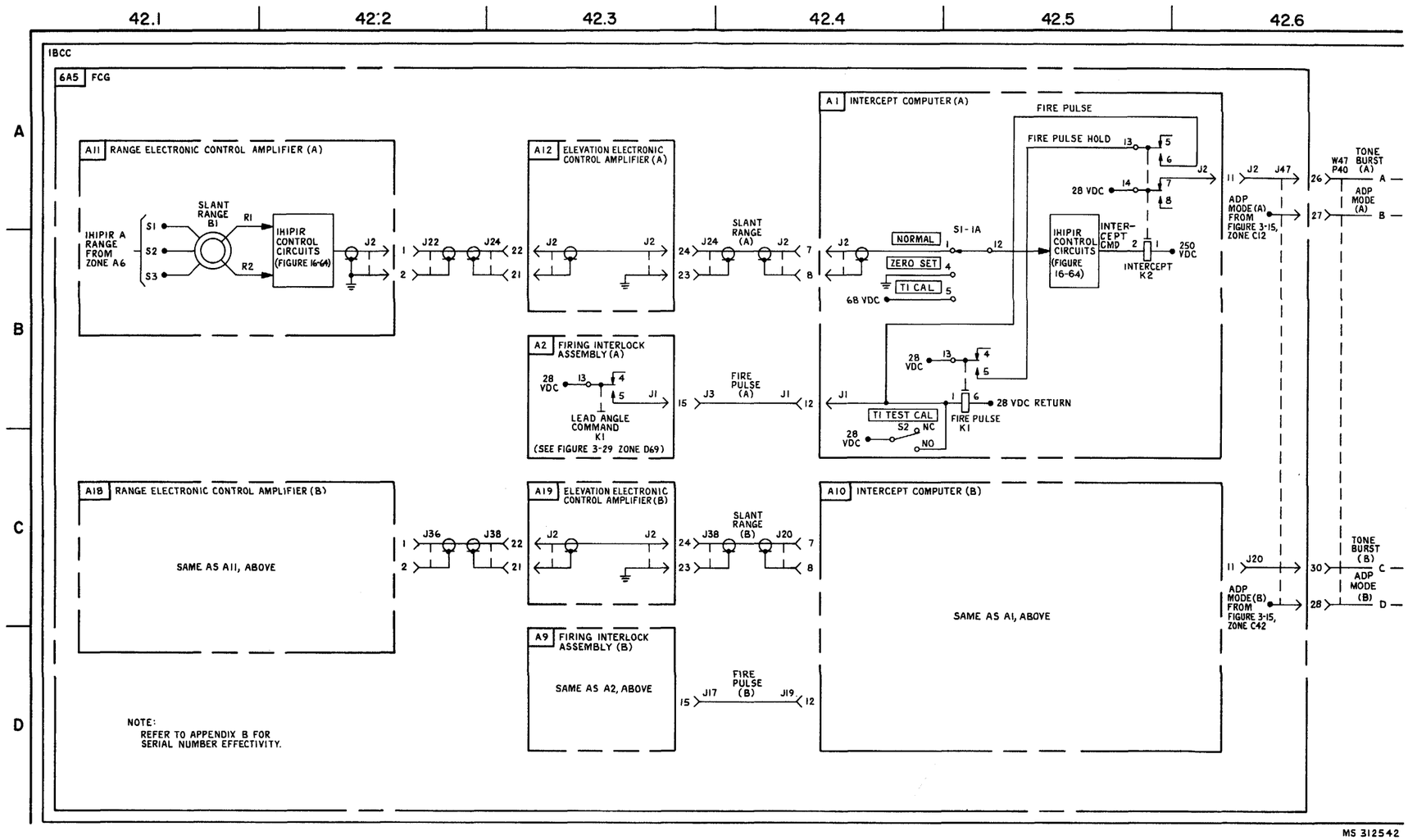


*FIGURE 3-16. IHIPIR LOCK AND TARGET INFORMATION *(E) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 7.1 OF 8).*

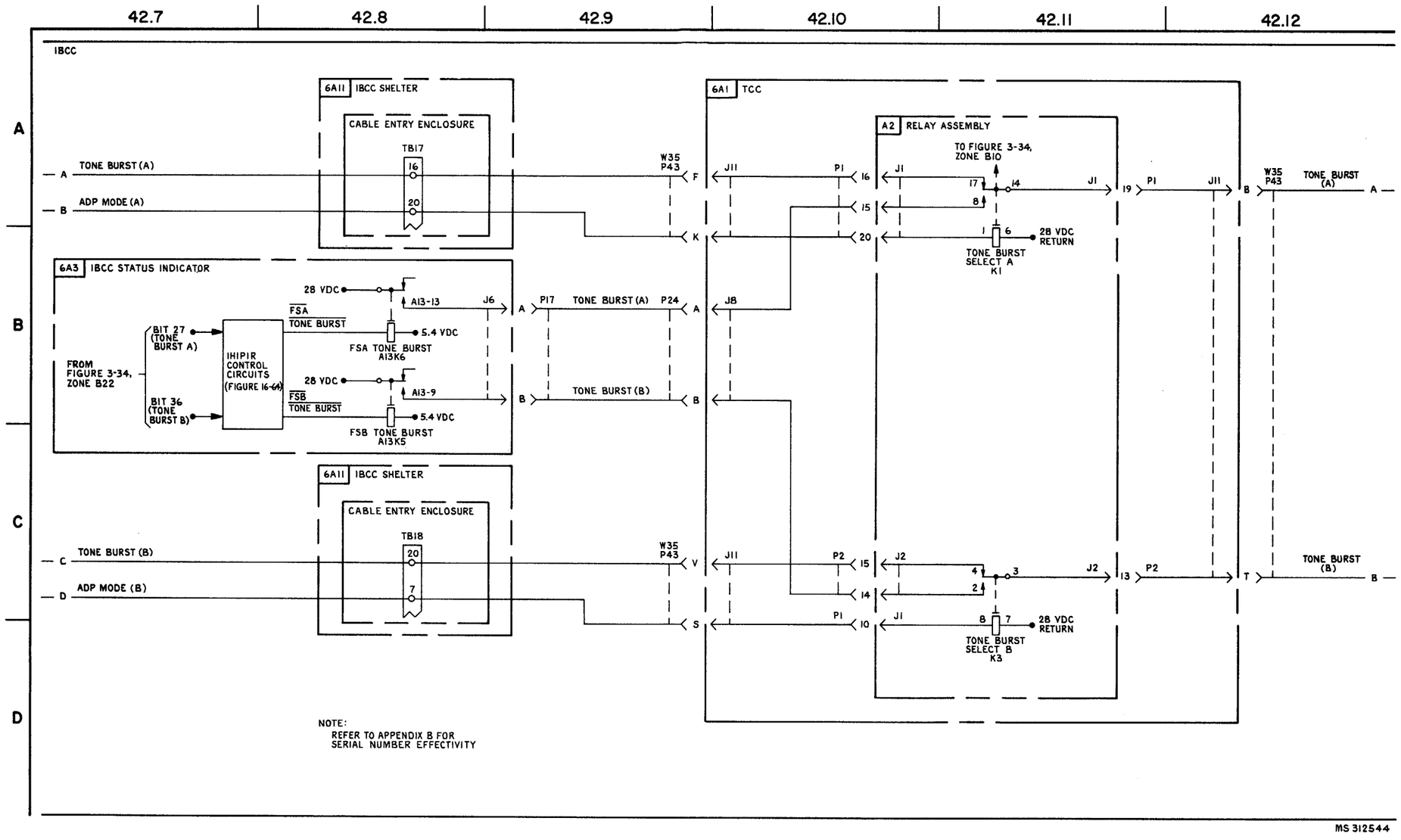


*FIGURE 3-16. IHIPIR LOCK AND TARGET INFORMATION * (E) (SEE NOTE)- SYSTEM FUNCTIONAL DIAGRAM (SHEET 7.2 OF 8).*

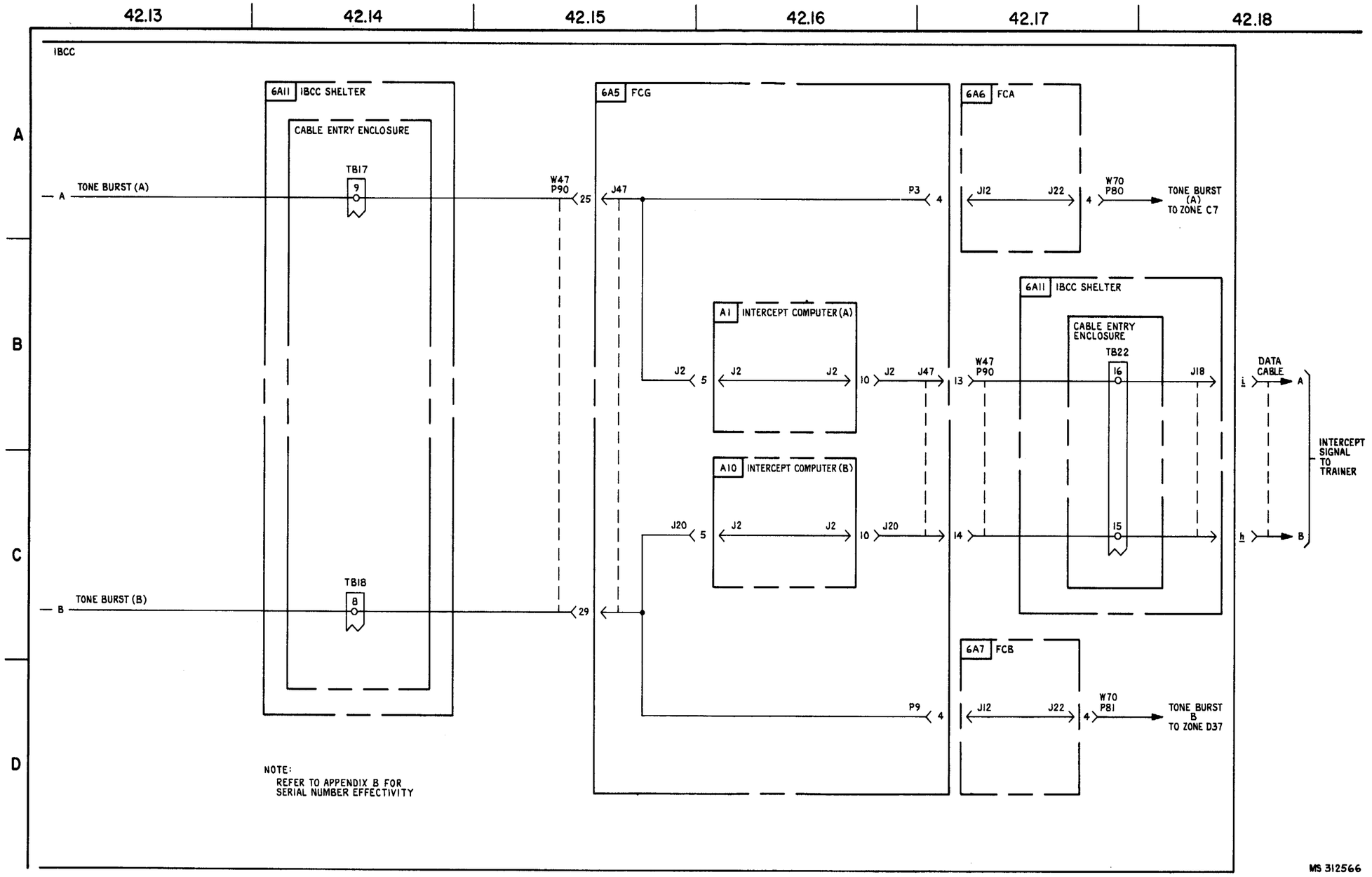


*FIGURE 3-16. IHIPIR LOCK AND TARGET INFORMATION * (E) (SEE NOTE)- SYSTEM FUNCTIONAL DIAGRAM (SHEET 7.3 OF 8).*

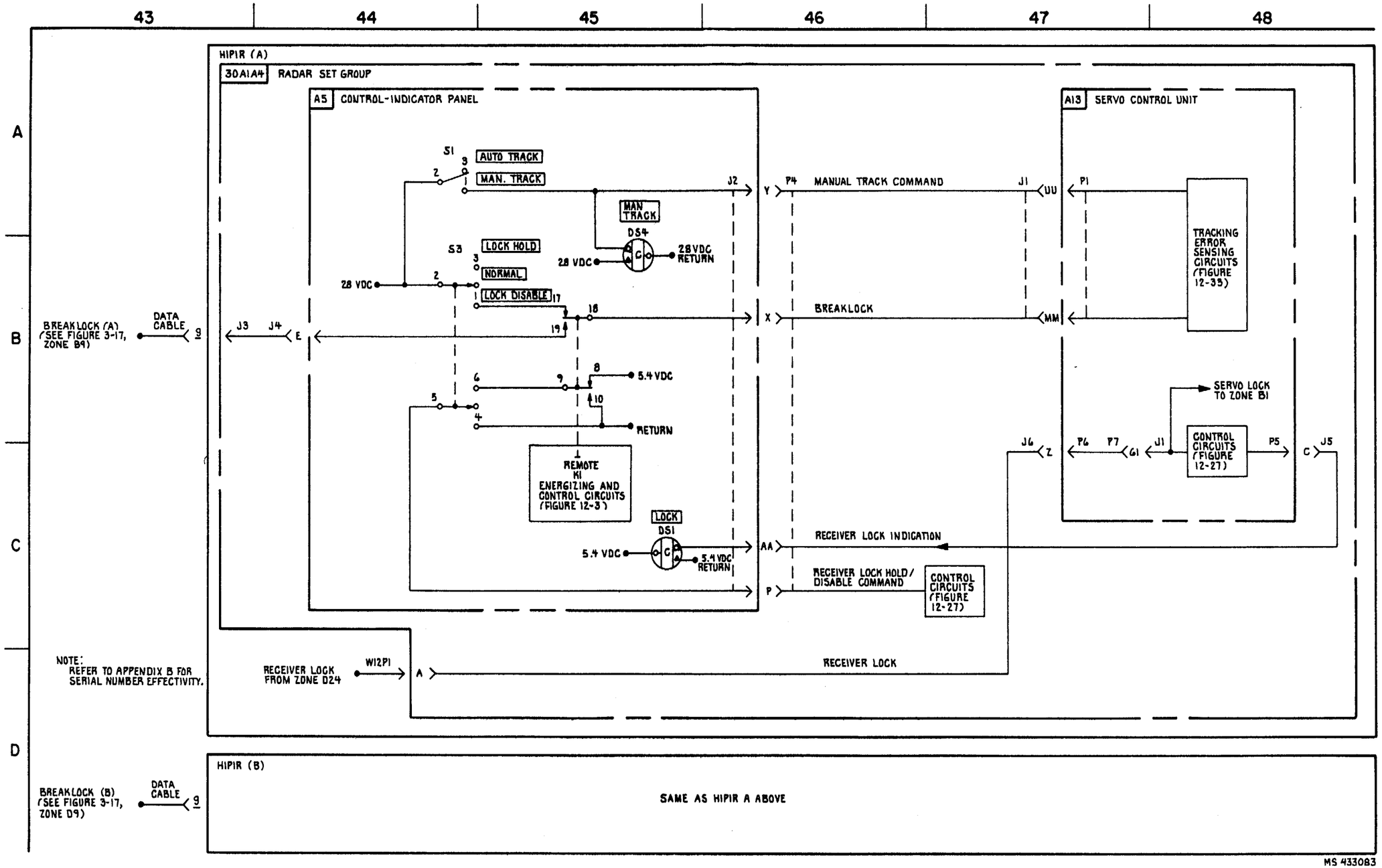


*FIGURE 3-16. HIPIR LOCK AND TARGET INFORMATION *(T) (SEE NOTE) - SYSTEM FUNCTIOINAL DIAGRAM (SHEET 8 OF 8).*

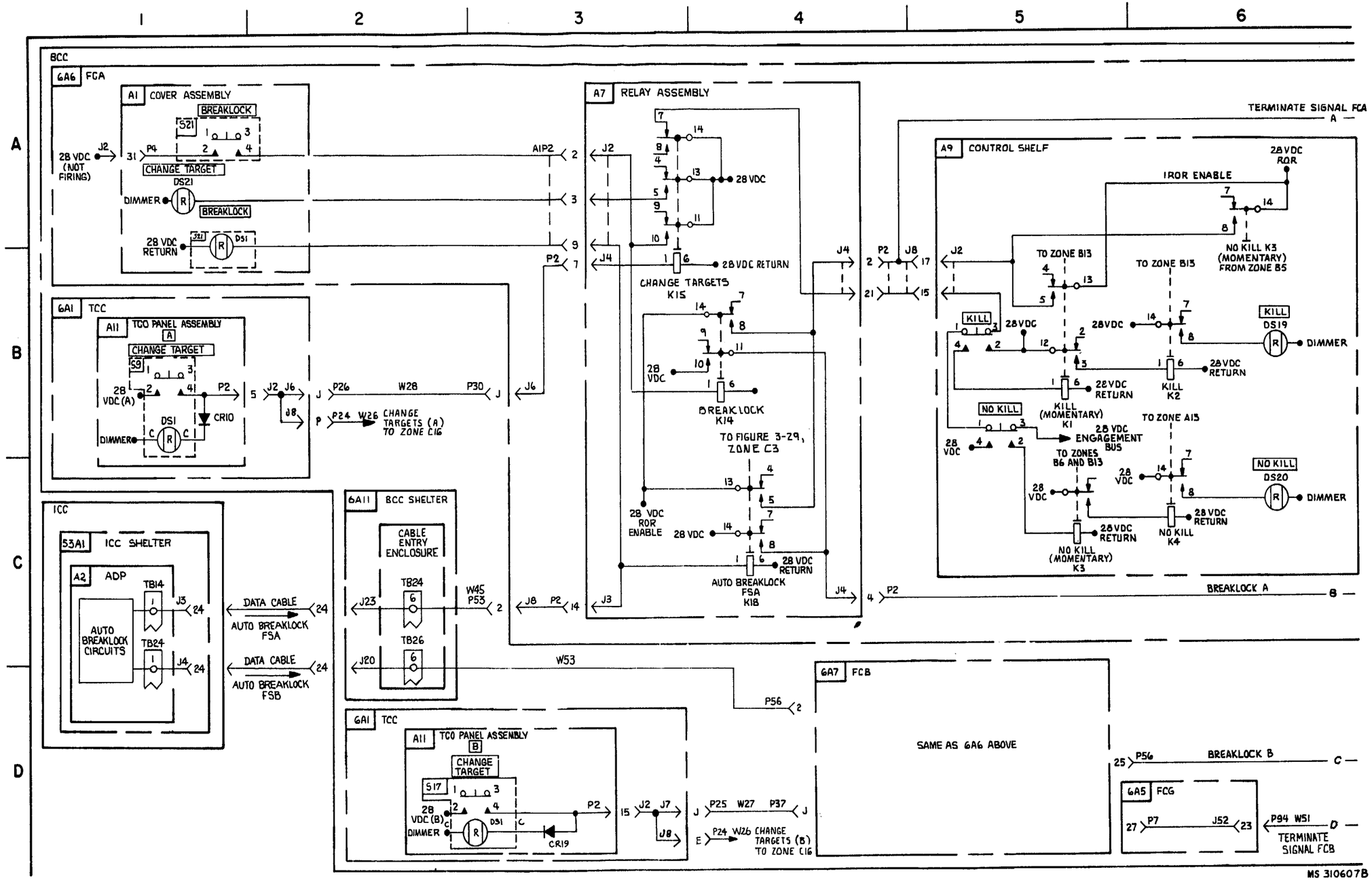


FIGURE 3-17. CHRNGE TARGETS AND BREAKLOCK - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 3).

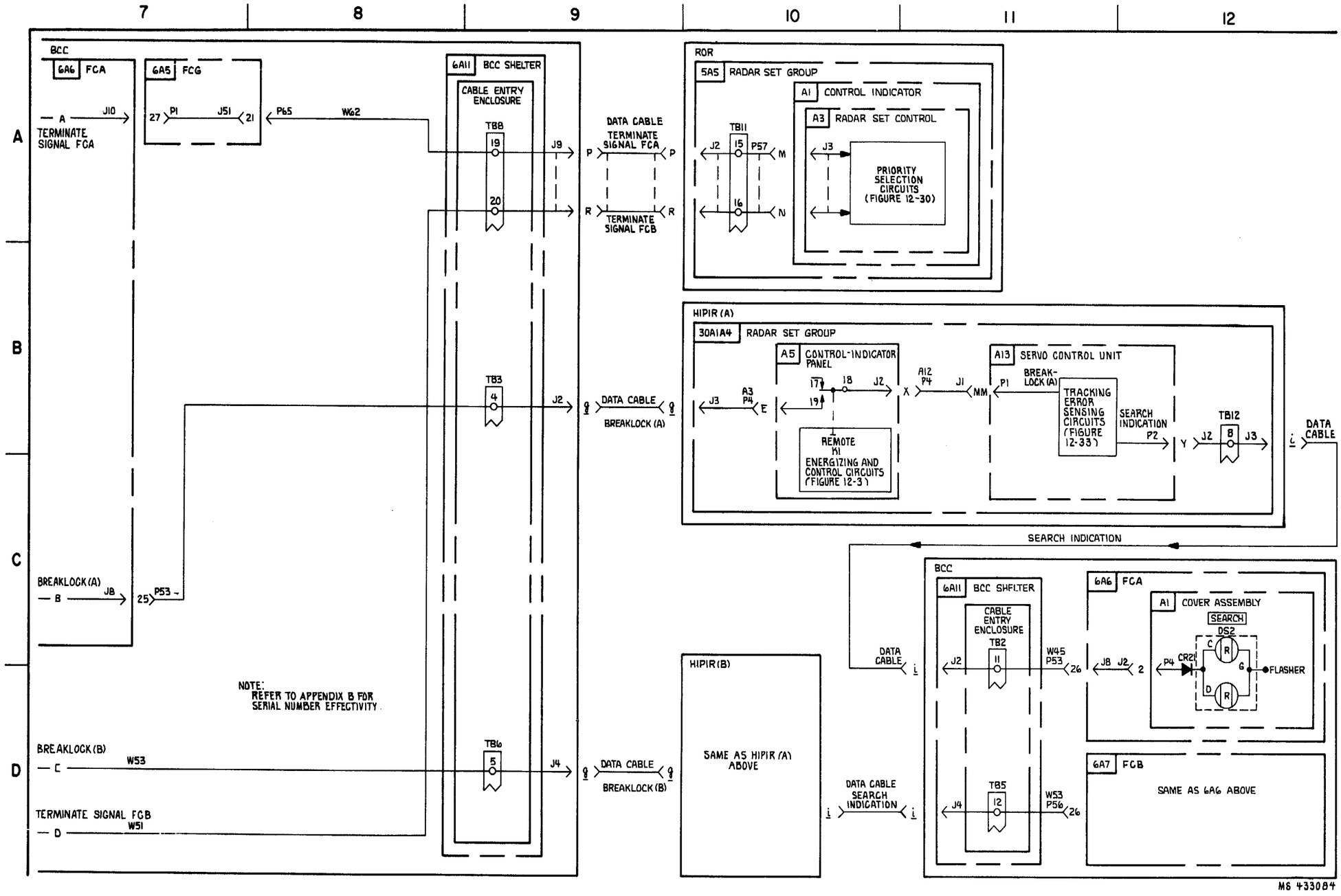


*FIGURE 3-17. CHANGE TARGETS AND BREMKLOCK *(T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 3).*

3-99/3-100 Blank

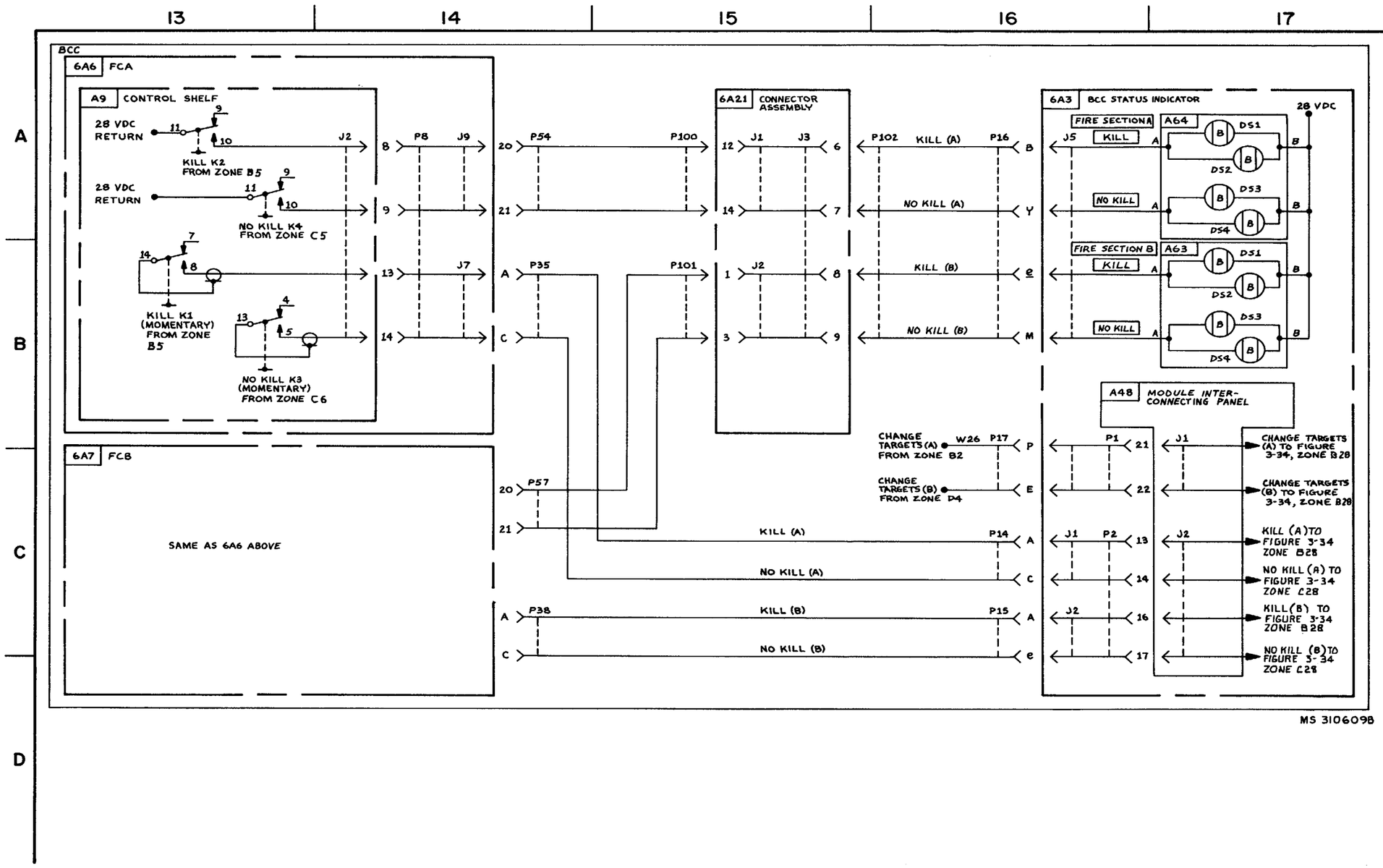


FIGURE 3-17. CHANGE TARGETS AND BREAKLOCK- SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 3)

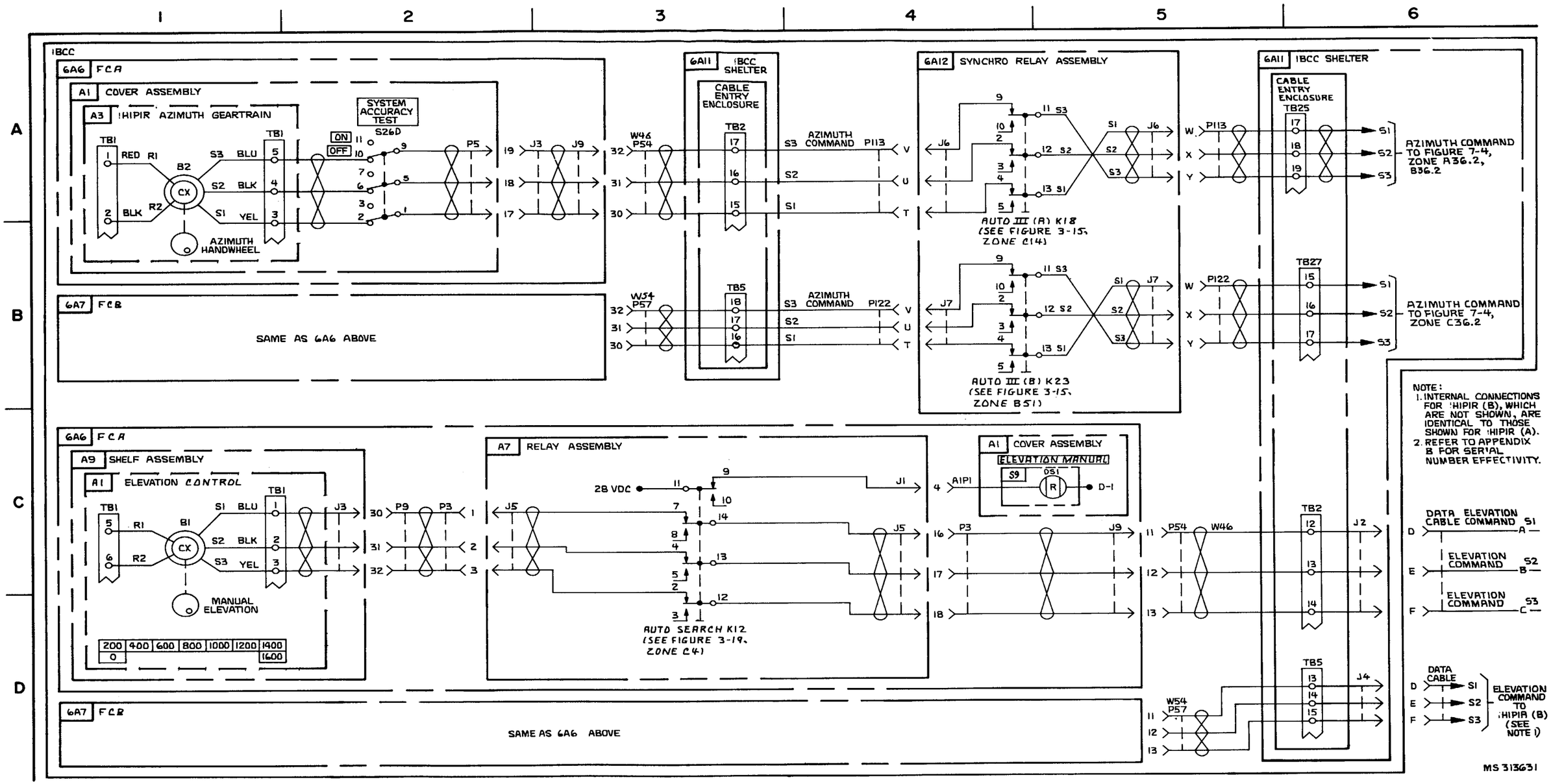


*FIGURE 3-18. .HIPIR MANUAL ANTENNA CONTROL *(N)(SEE NOTE 2)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 5).*

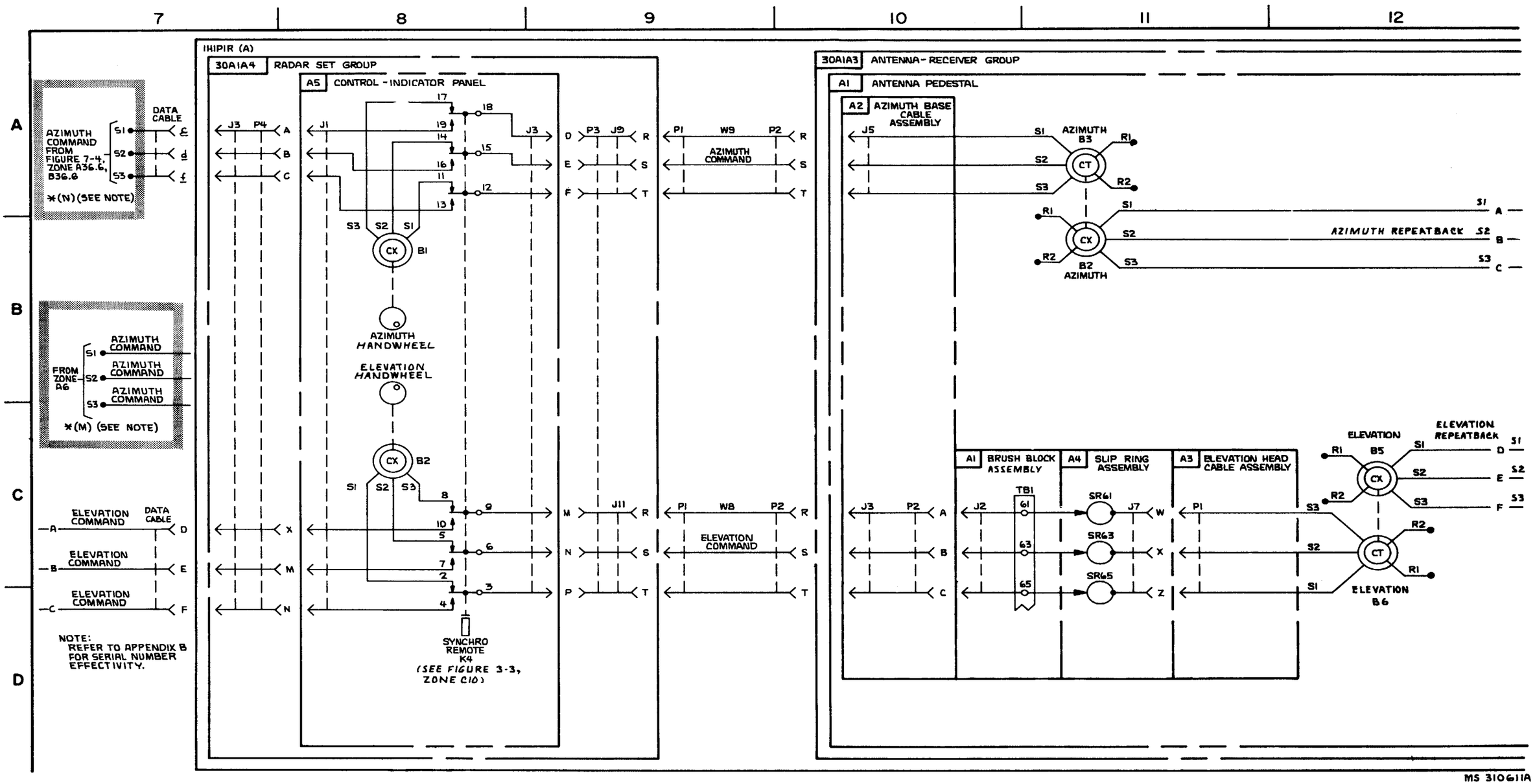


FIGURE 3-18. IHIPIR MANUAL ANTENNA CONTROL- SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 5).

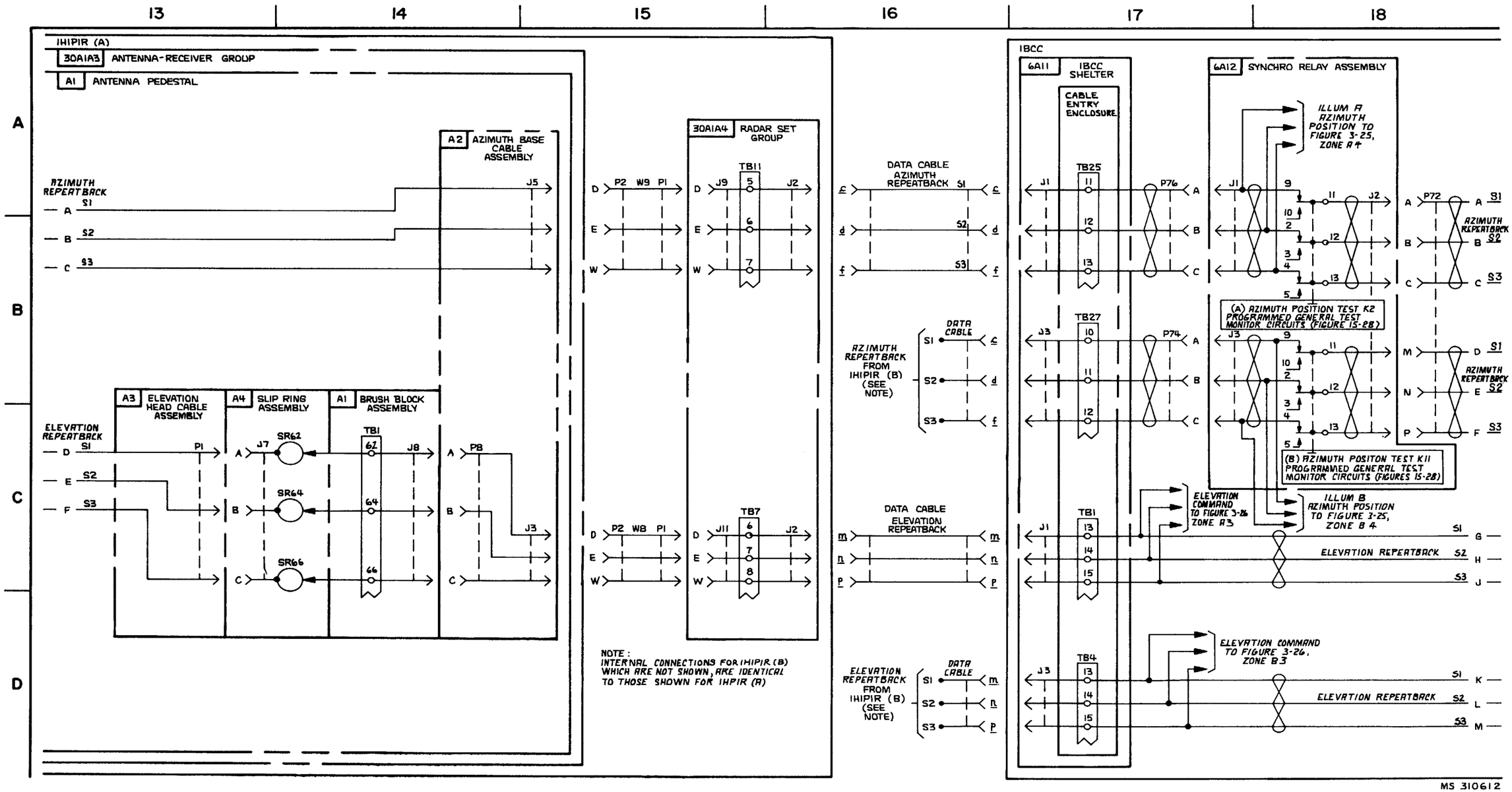


FIGURE 3-18. IHIPIR MANUAL ANTENNA CONTROL- SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 5).

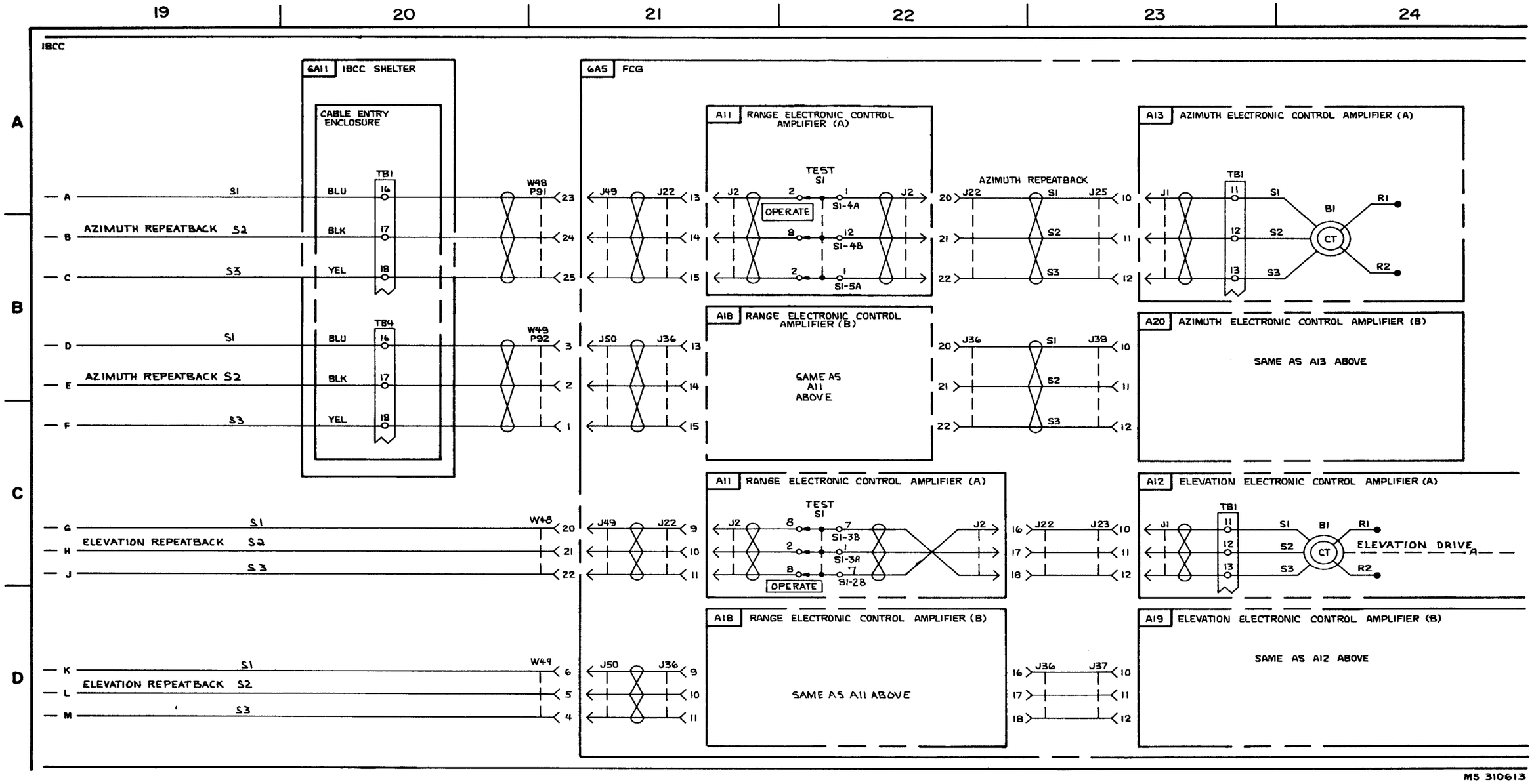


FIGURE 3-18. IHIPIR MANUAL ANTENNA CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 5).

C5

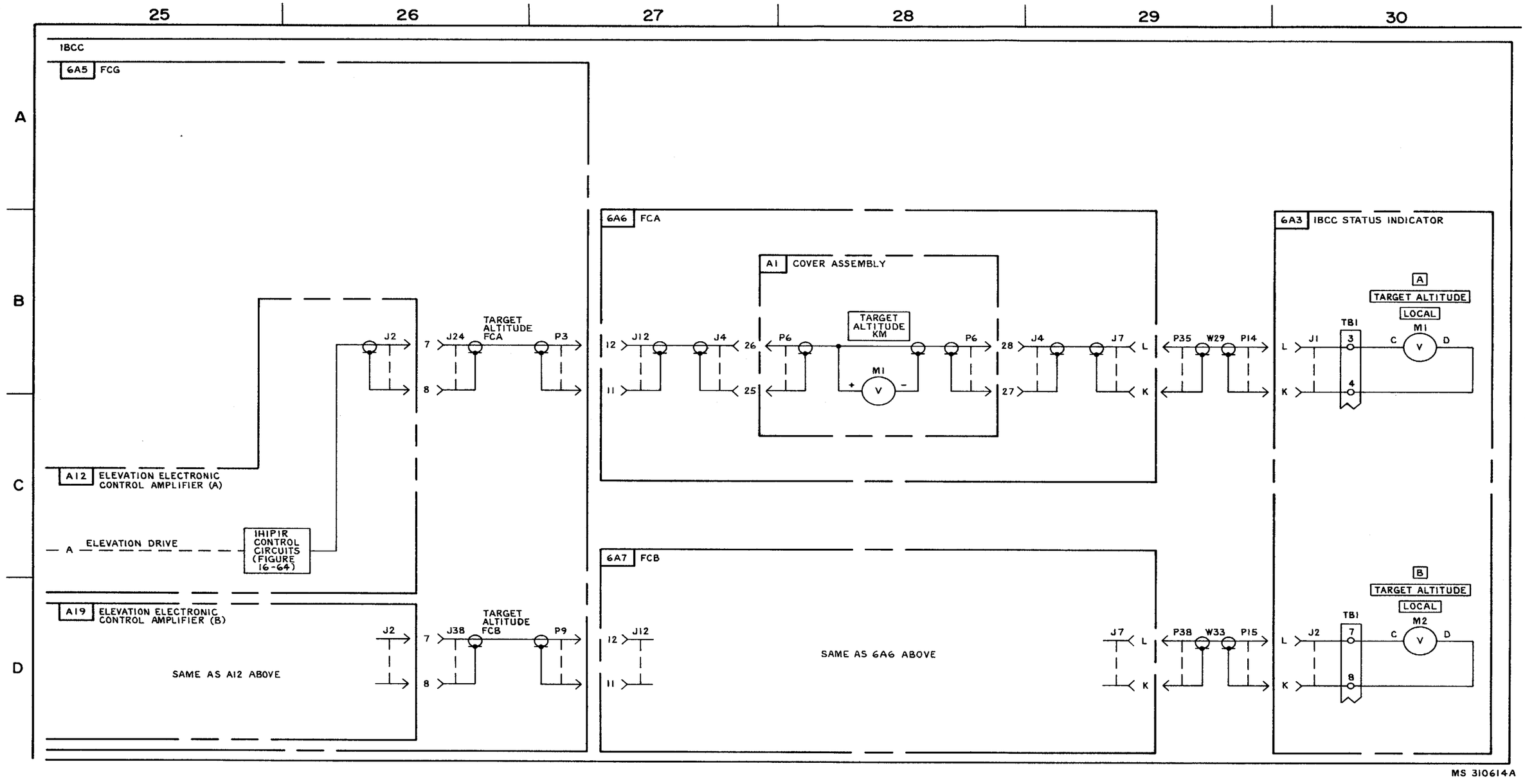


FIGURE 3-18. IHIPIR MANUAL ANTENNA CONTROL-SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 5).

C6

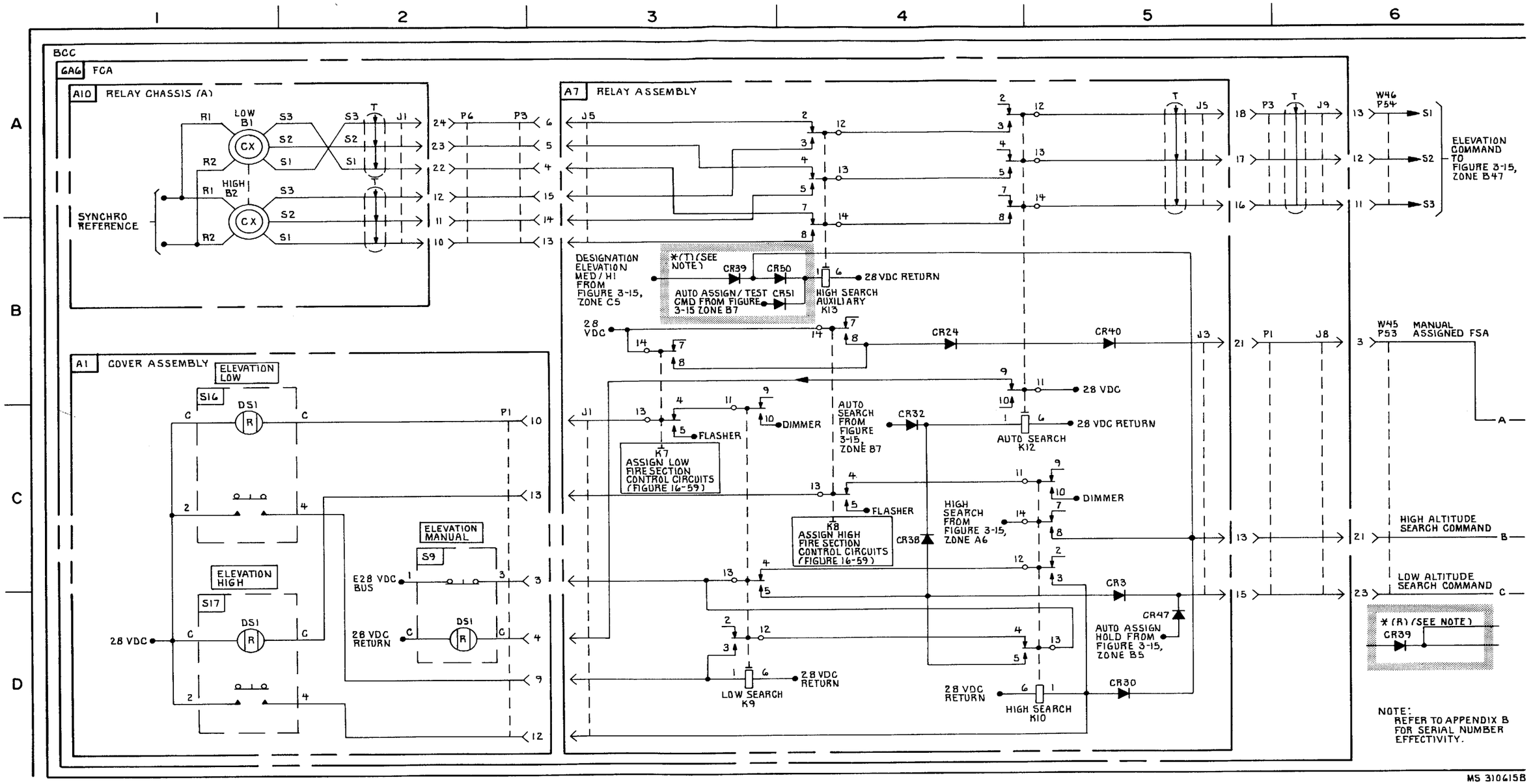


FIGURE 3-19. HIPIR MANUAL ANTENNA SEARCH- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF3).

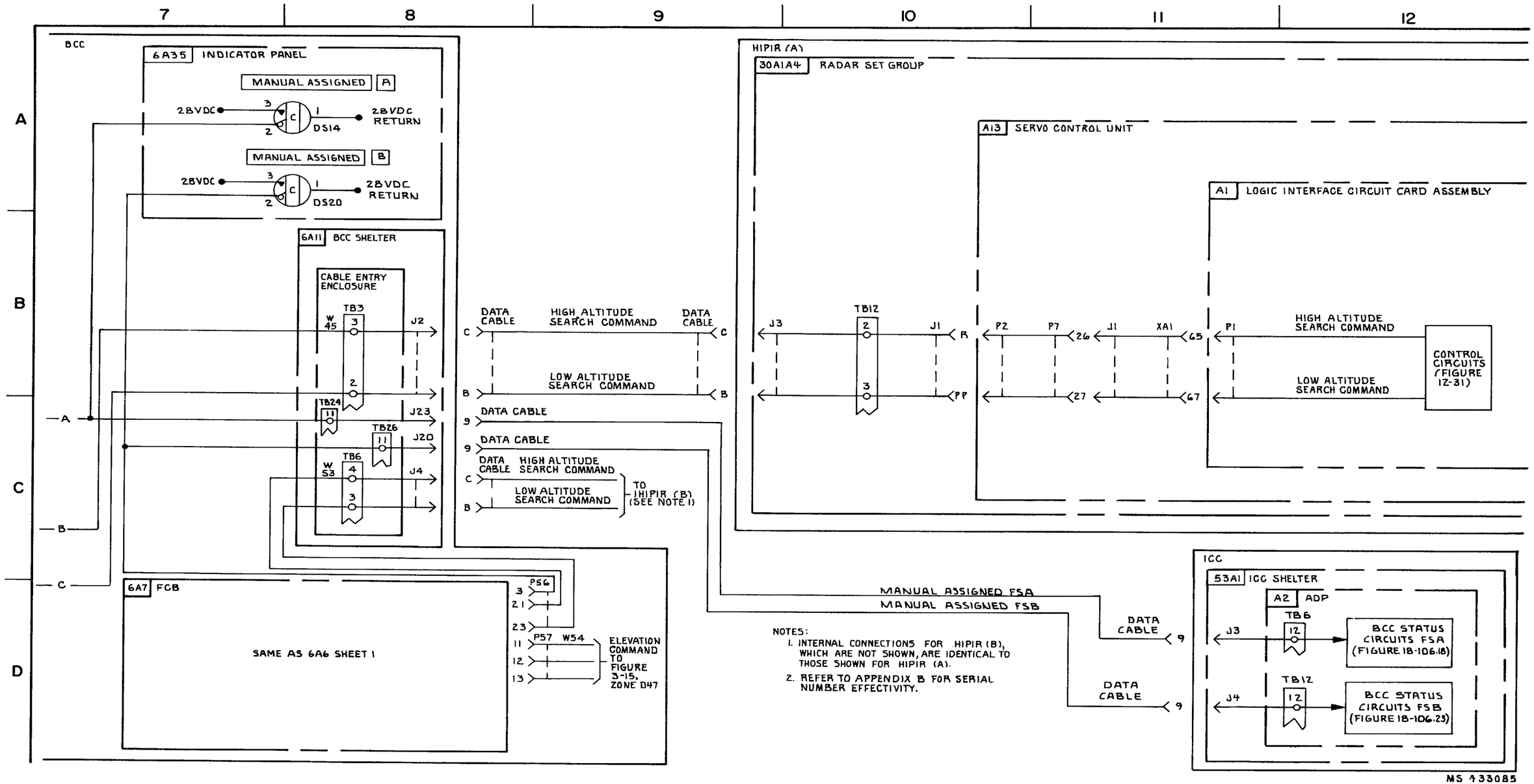
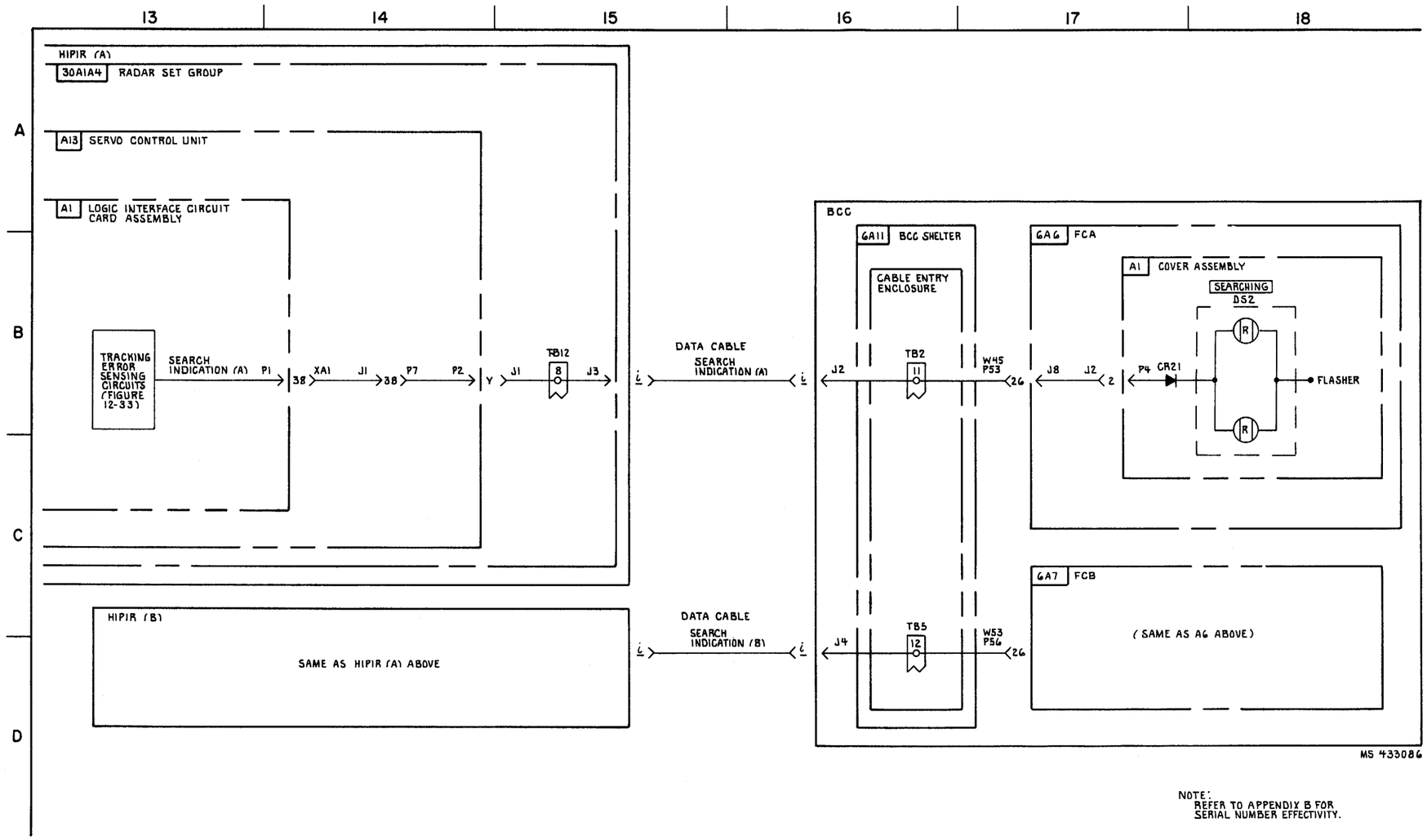


*FIGURE 3- 19. HIPIR MANUAL ANTENNA SEARCH *(T) (SEE NOTE 2)- SYSTEM FUNGTIONAL DIAGRAM (SHEET 2 OF 3).*



NOTE:
REFER TO APPENDIX B FOR SERIAL NUMBER EFFECTIVITY.

*FIGURE 3-19. HIPIR MANUAL ANTENNA SEARCH * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 3).*

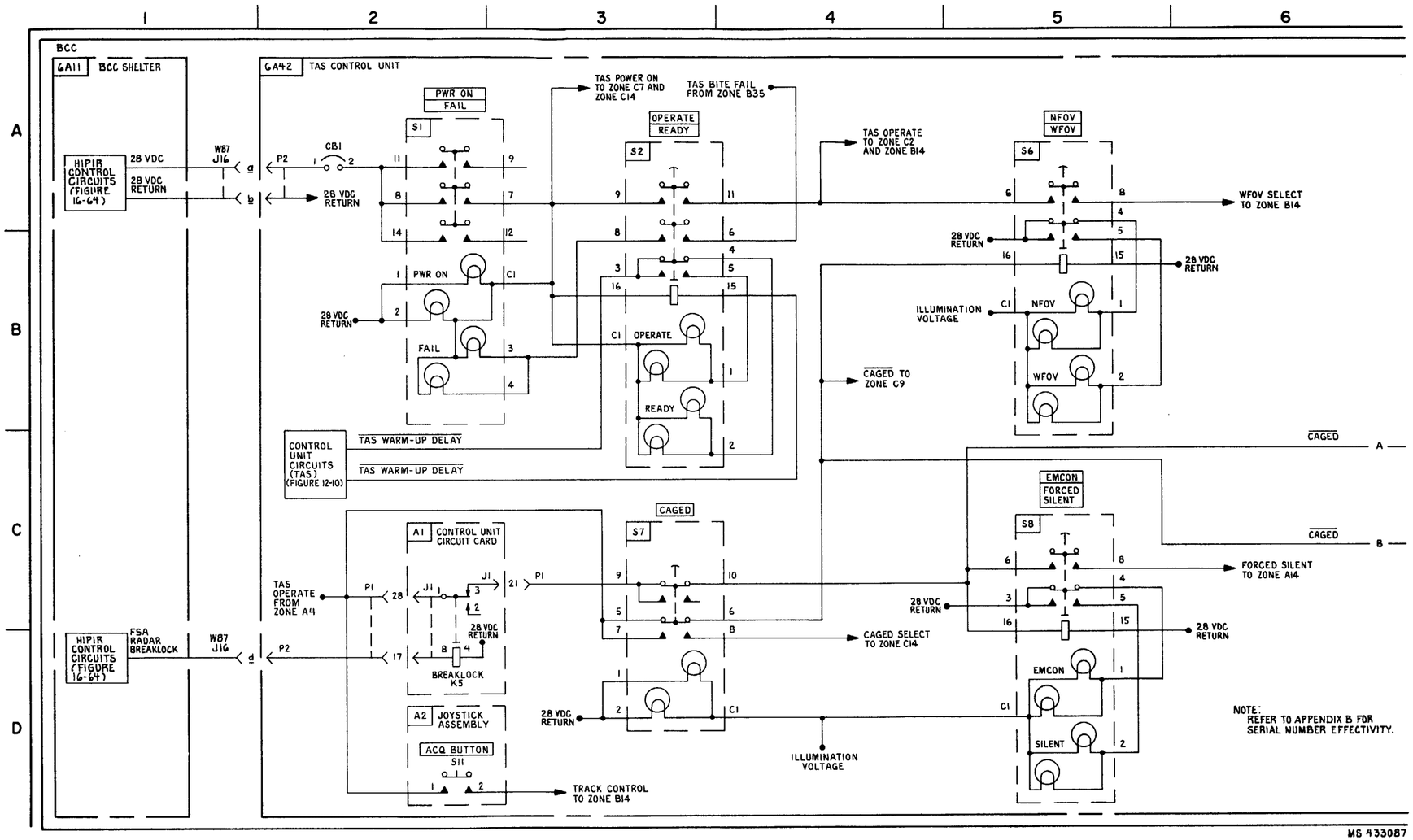


*FIGURE 3-19.1. TAS INTERFACE *(W) (SEE NOTE)-SYSTM FUNCTIONAL DIAGRAM (SHEET 1 OF 7).*

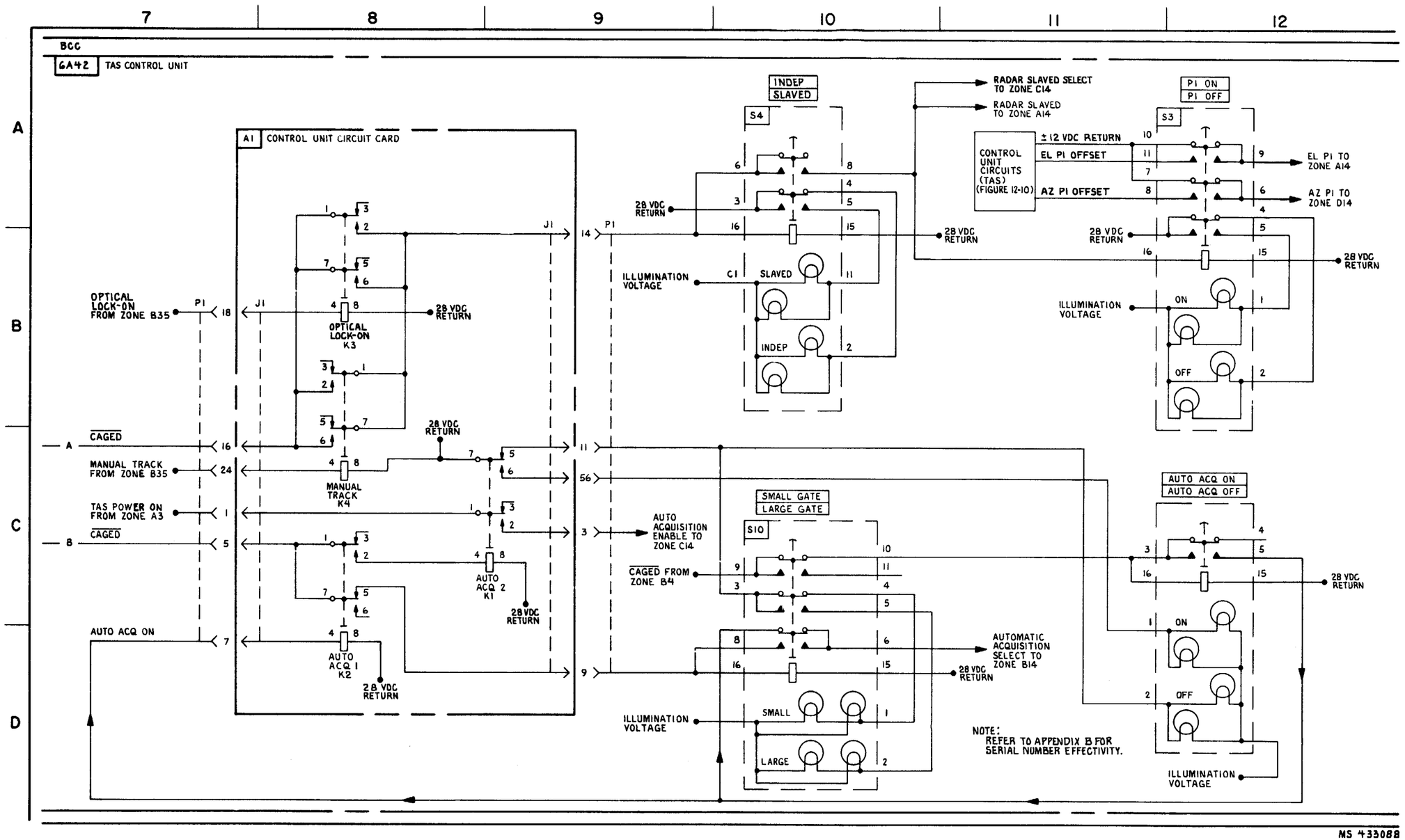


*FIGURE 3-19.2. TAS INTERFACE * (W) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 7)*

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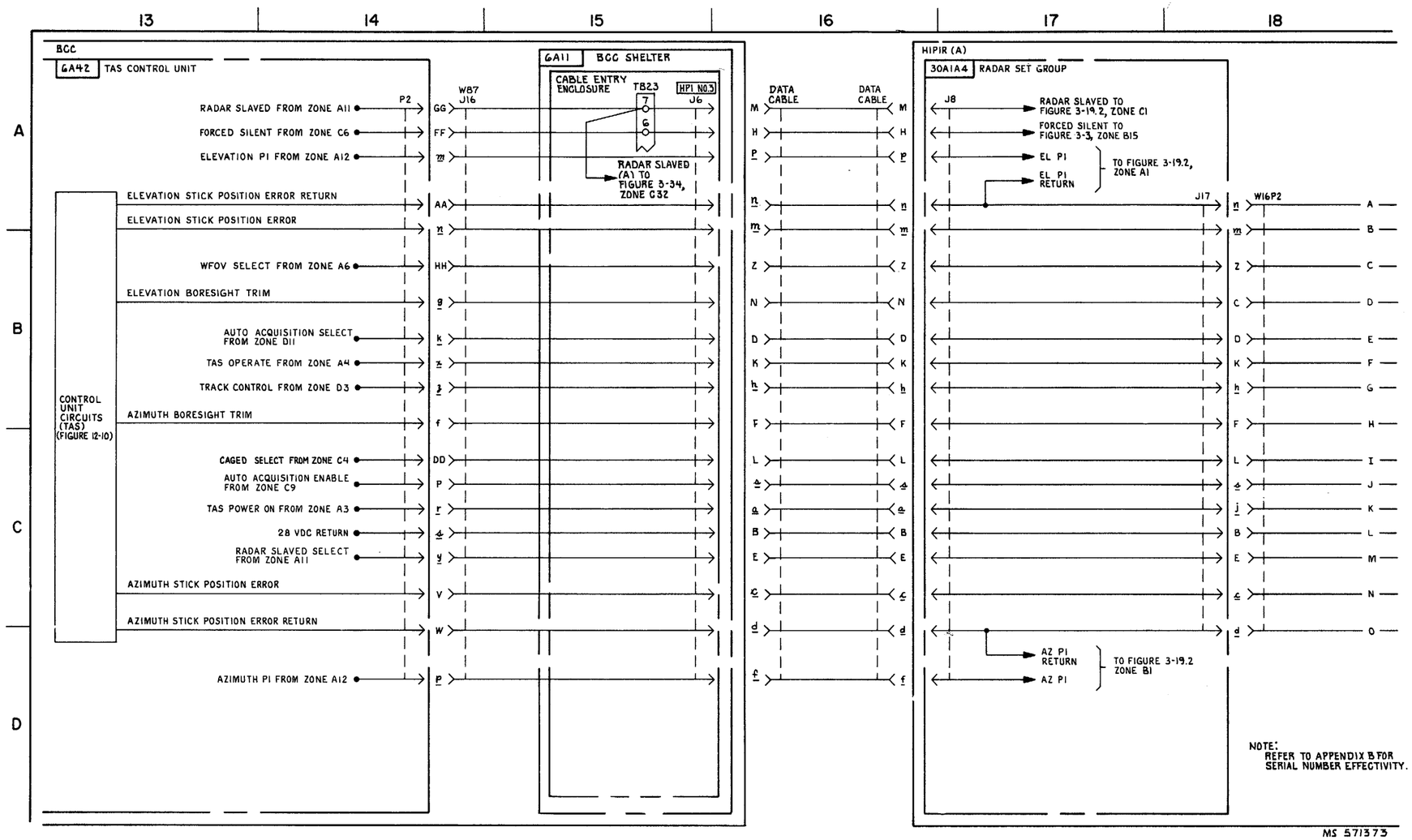

*FIGURE 3-19.3 TAS INTERFACE * (AA) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 0F 7).*

3-112.5 /3-112.6 blank

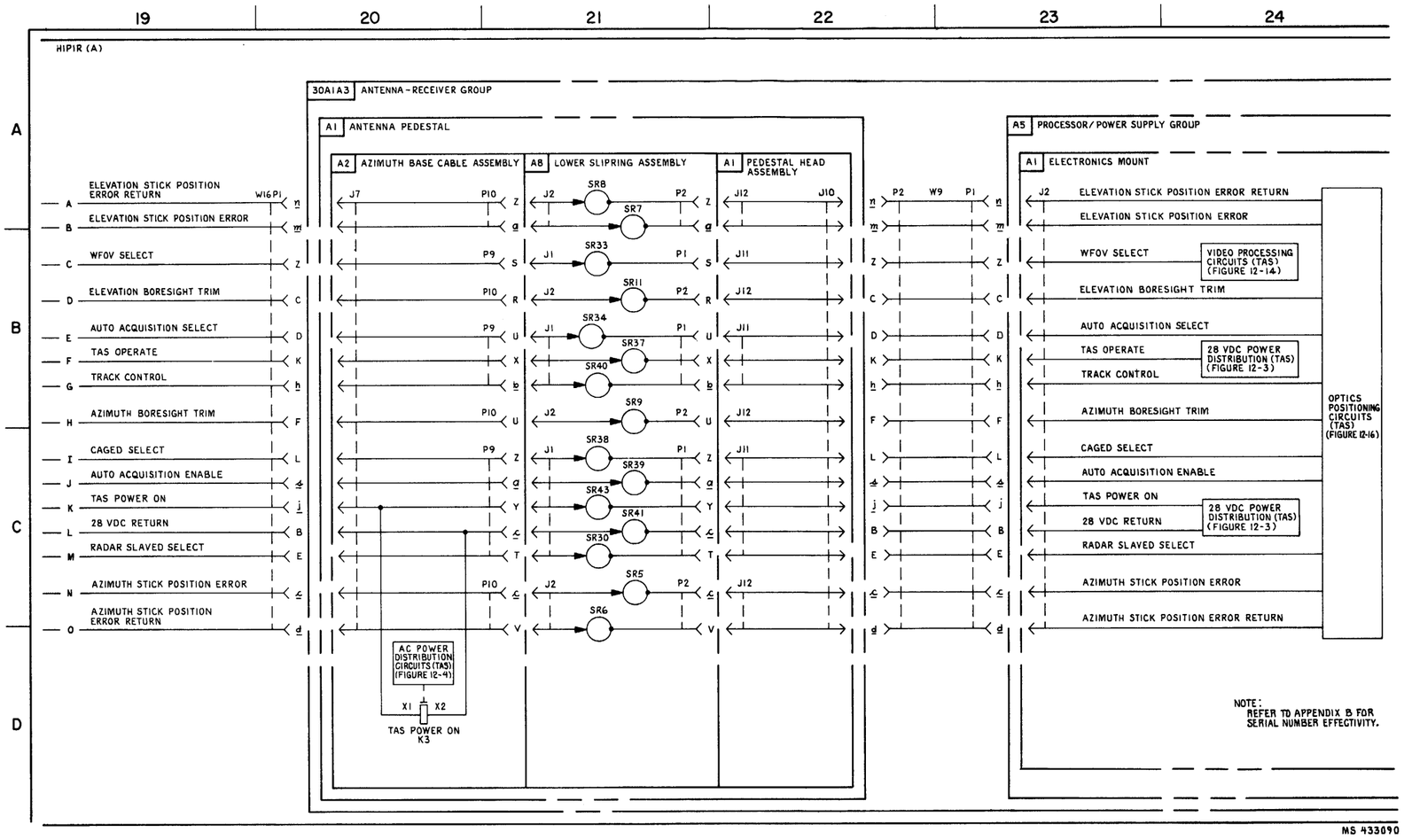

*FIGURE 3-19.4. TAS INTERFACE *(W) ('SEE NOTE) - SYSTEM FUNCTIONAL DIAGIAM (SHEET 4 OF 7).*

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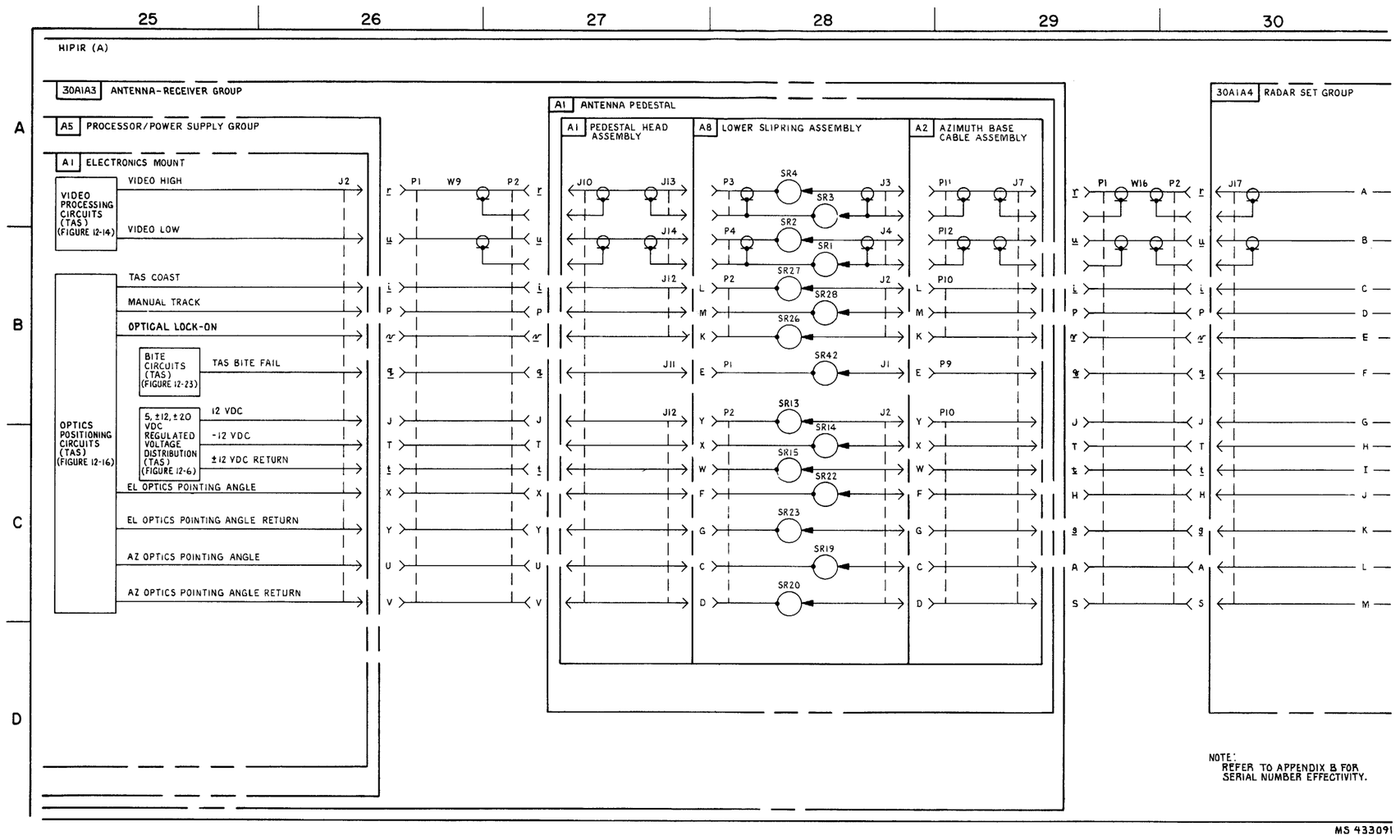

FIGURE 3-19.5. TAS INTERFACEC(W) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 7).*

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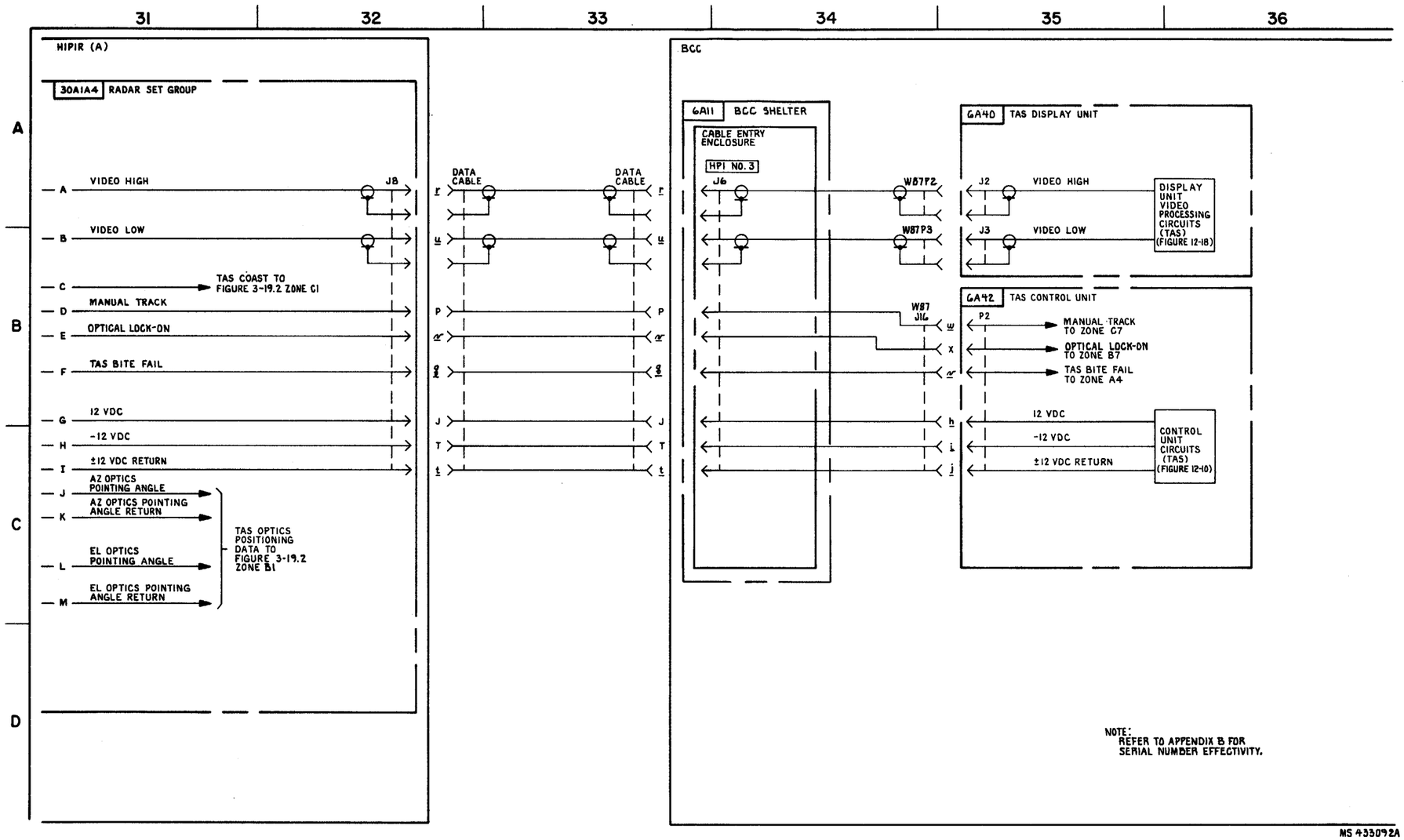

*FIGURE 3-19.6. TAS INTERFACE * (W) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 7)*

3-112. 11/3-112.12 blank

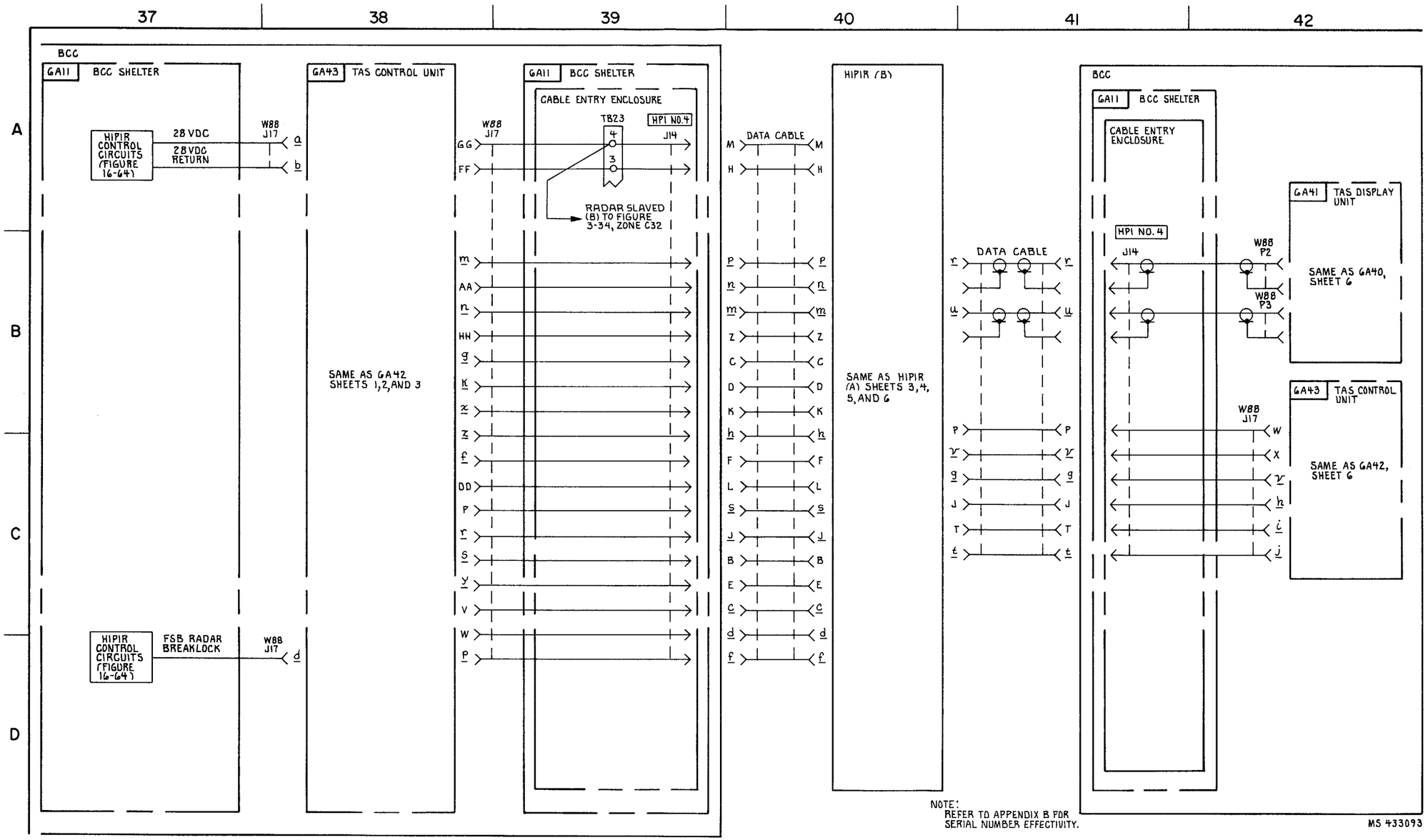

*FIGURE 3-19.7. TAS INTERFACE * (W) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 7).*

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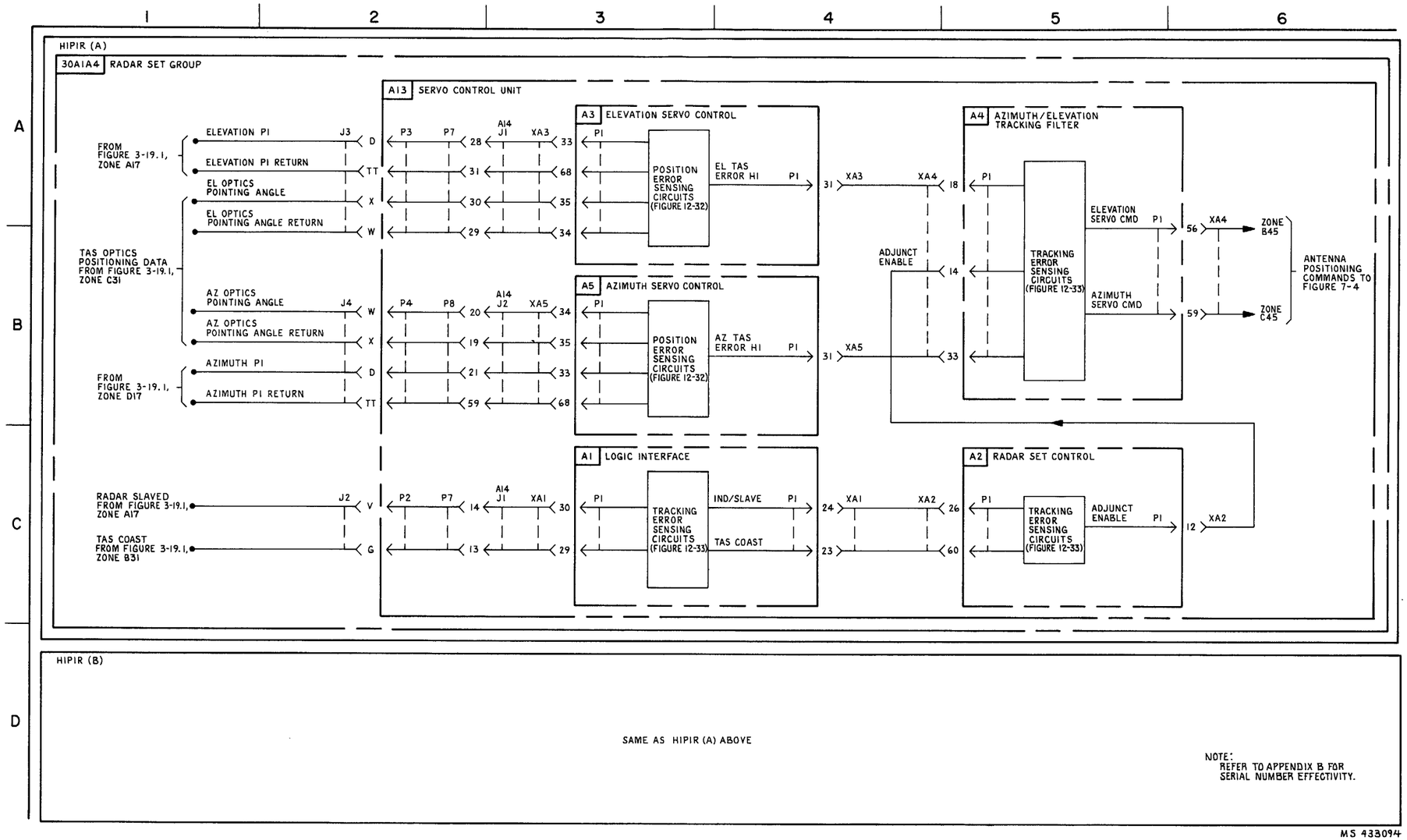

*FIGURE 3-19.2 HIPIR SLAVED-ANTENNAL CONTROL CIRCUITS *(W) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM.*

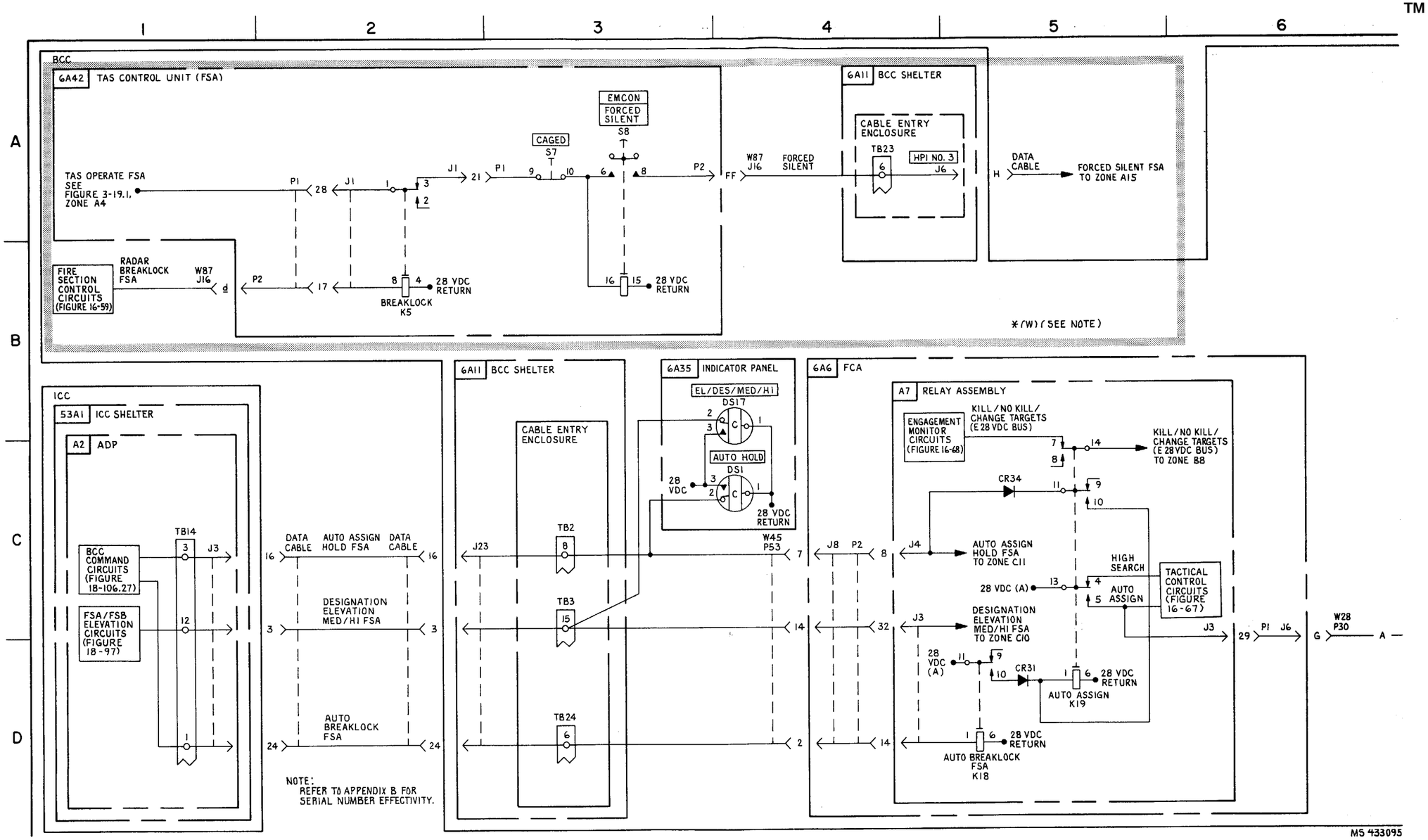

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL *(T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 8).*

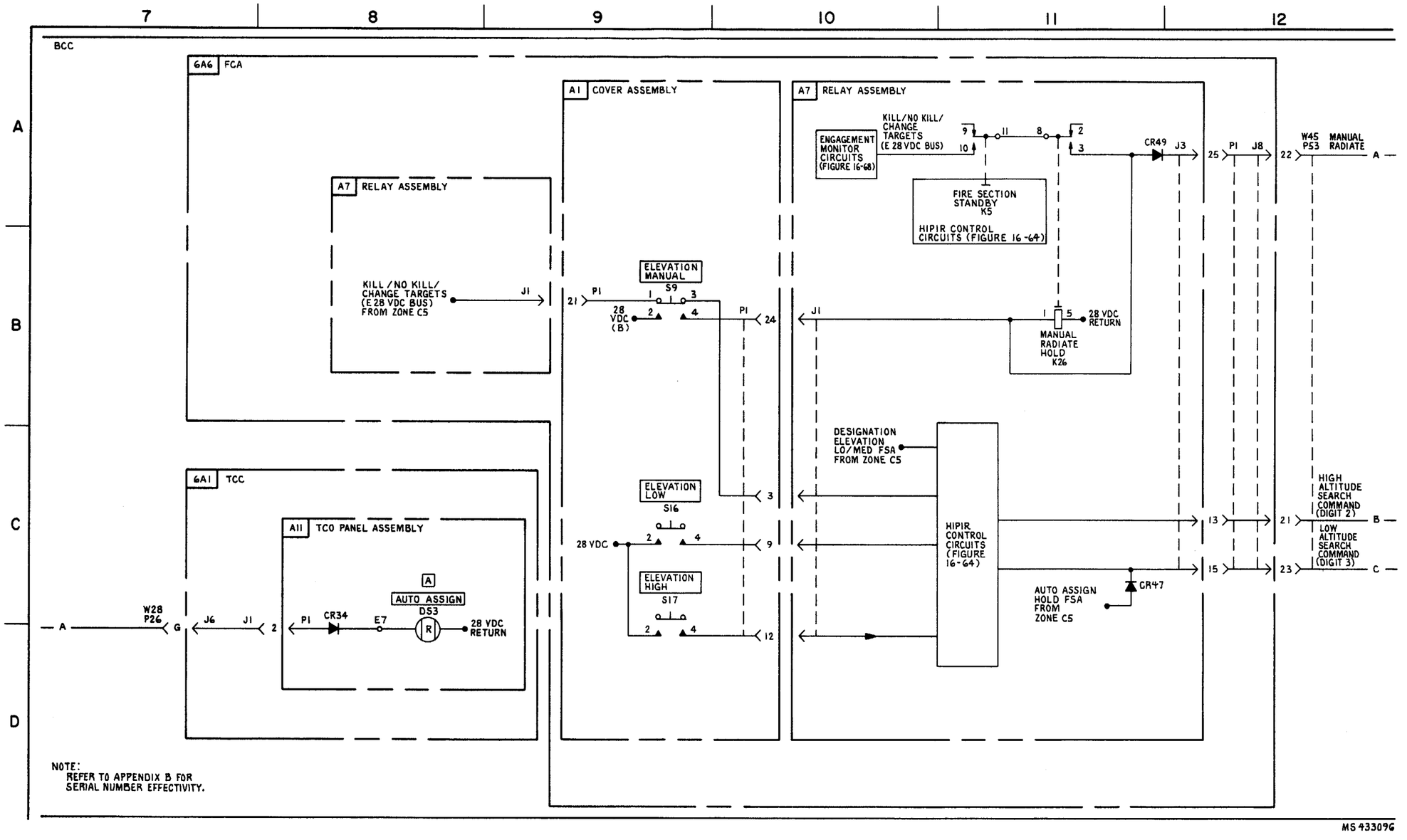

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL * (T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2)*

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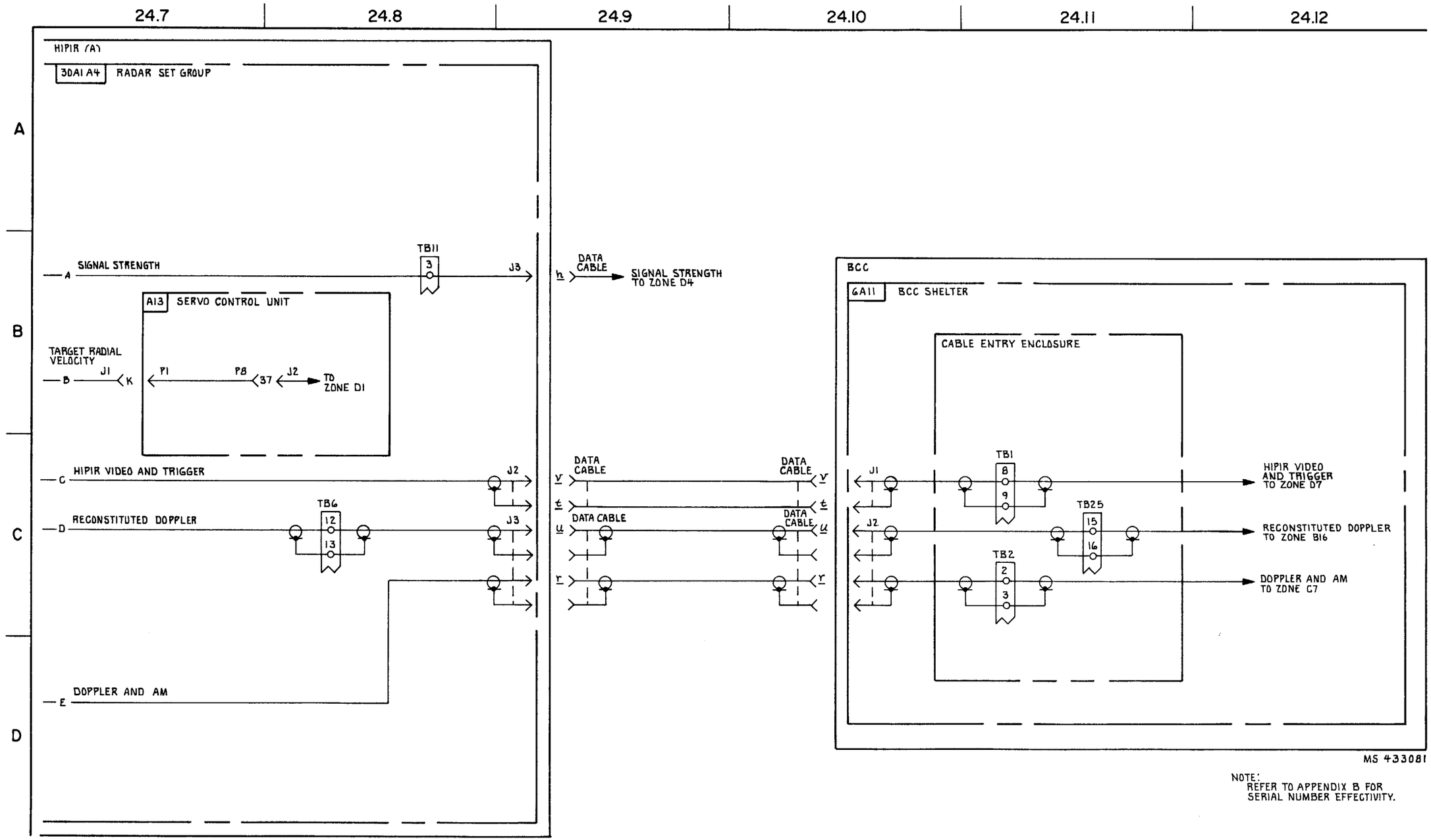

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 8).*

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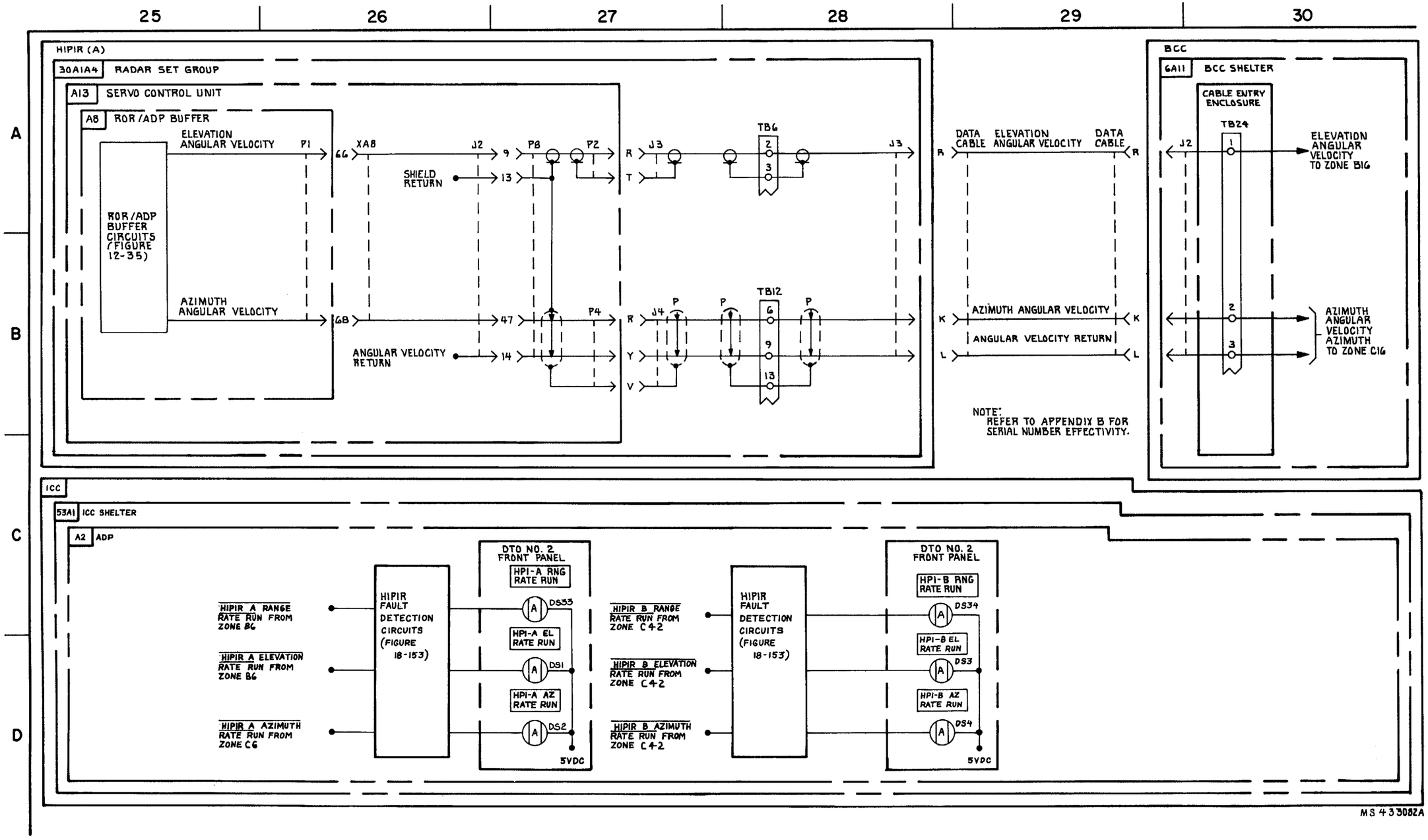

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 8).*

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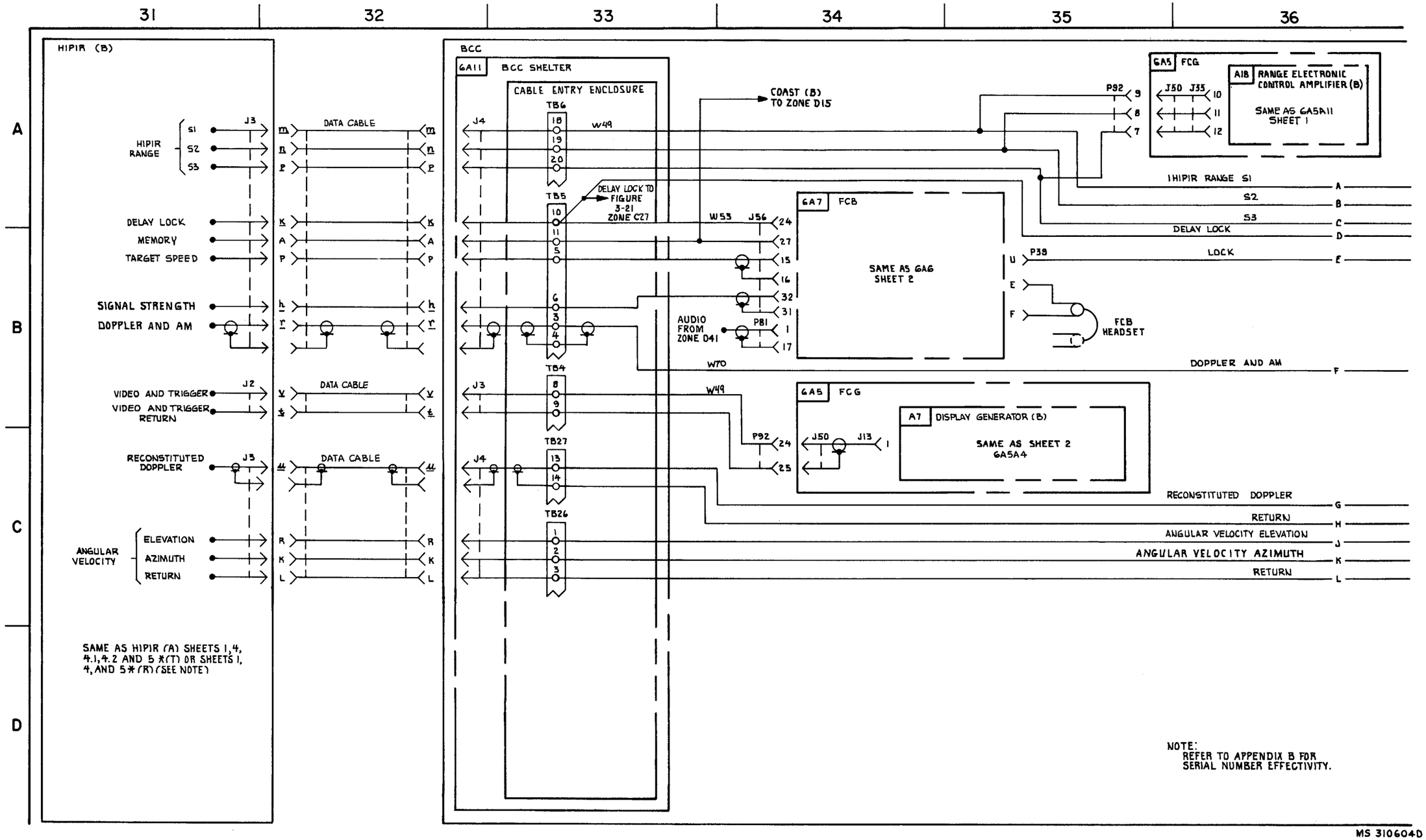

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL *M (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 8).*

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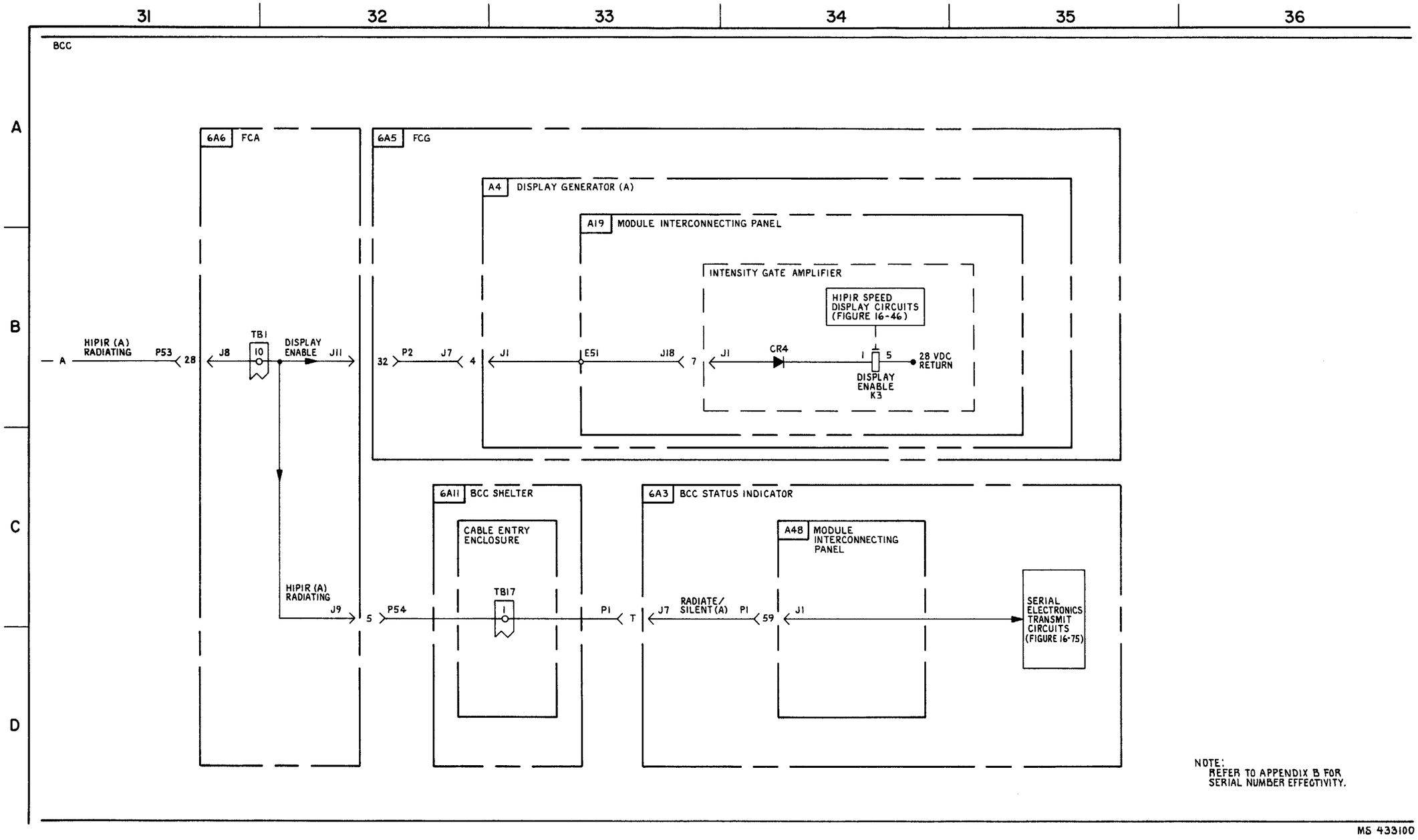

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL * (T) (SEE NOTE) - SYSTEM FUNCTIOIAL DIAGRAM {SHEET 6 OF 8).*

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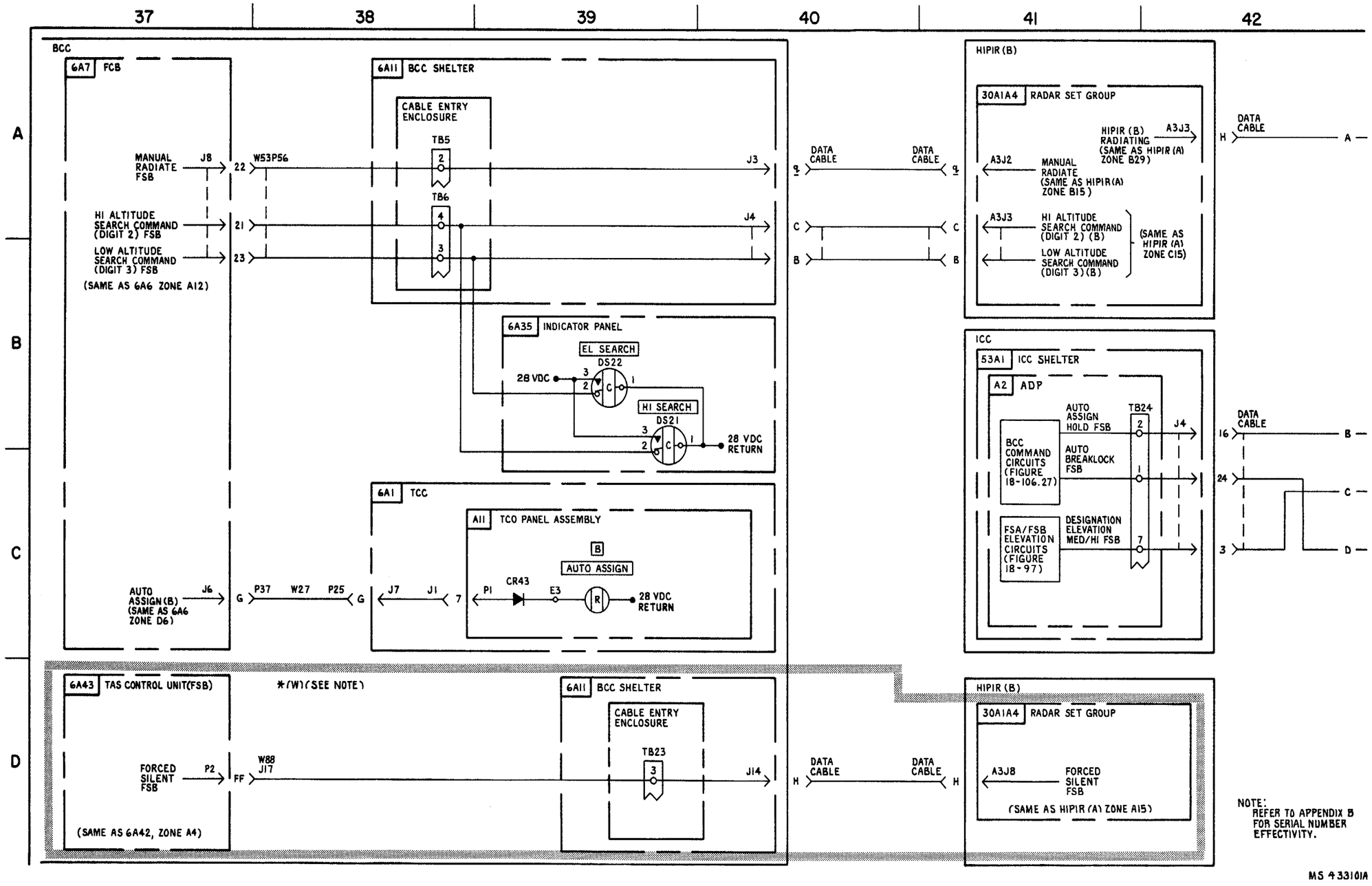

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL * (T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET (7 OF 8).*

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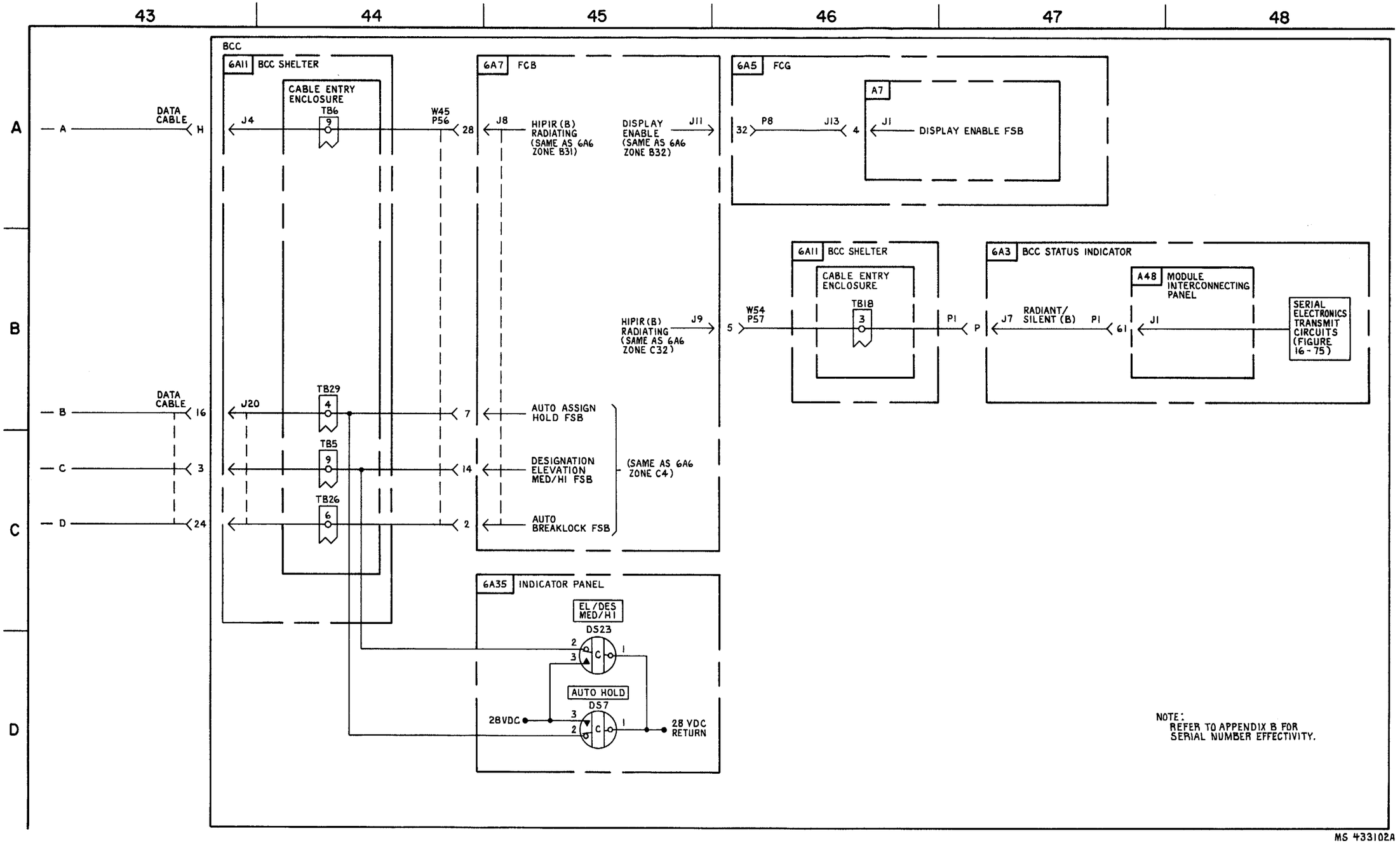

*FIGURE 3-19.3. HIPIR EMCON MODE CONTROL * (T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 8).*

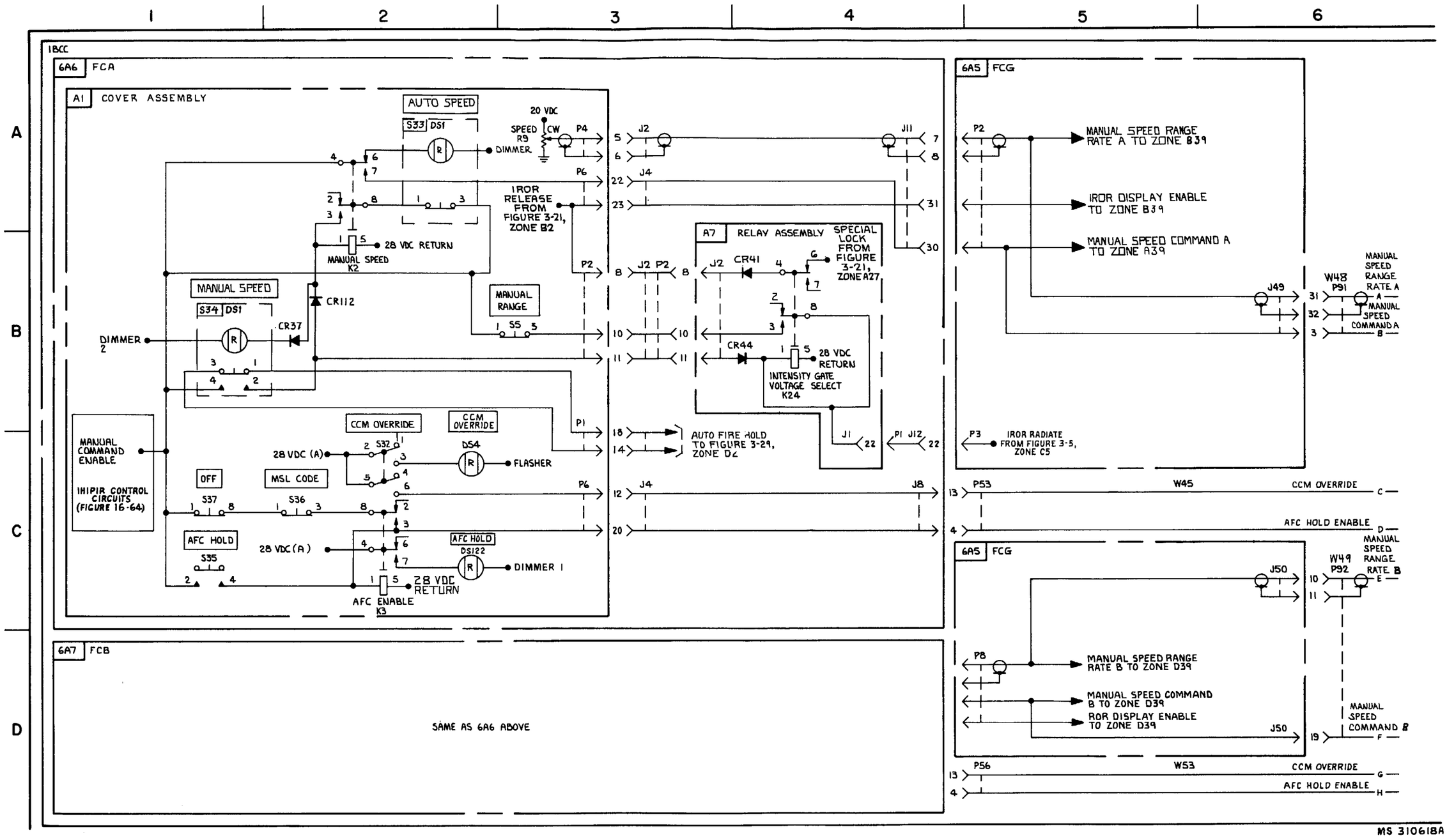

FIGURE 3-20. IHIPIR MANUAL SPEED TRACKING, SPECIAL LOCK,AND AFC HOLD, - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 7)

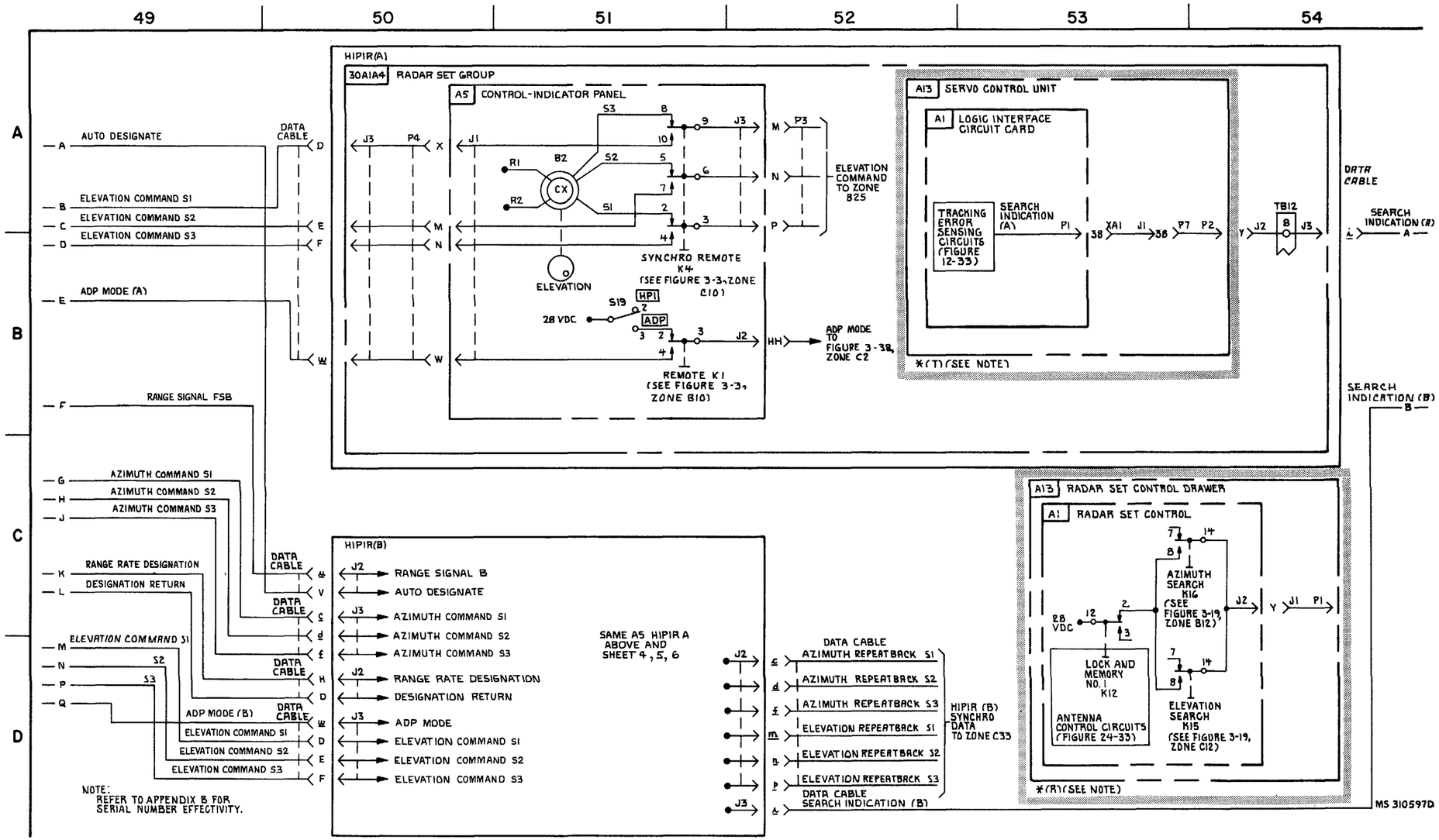

FIGURE 3-20. HIPIR MANUAL SPEED TRACKING, SPECIAL LOCK ,AND AFC HOLD- SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 7).

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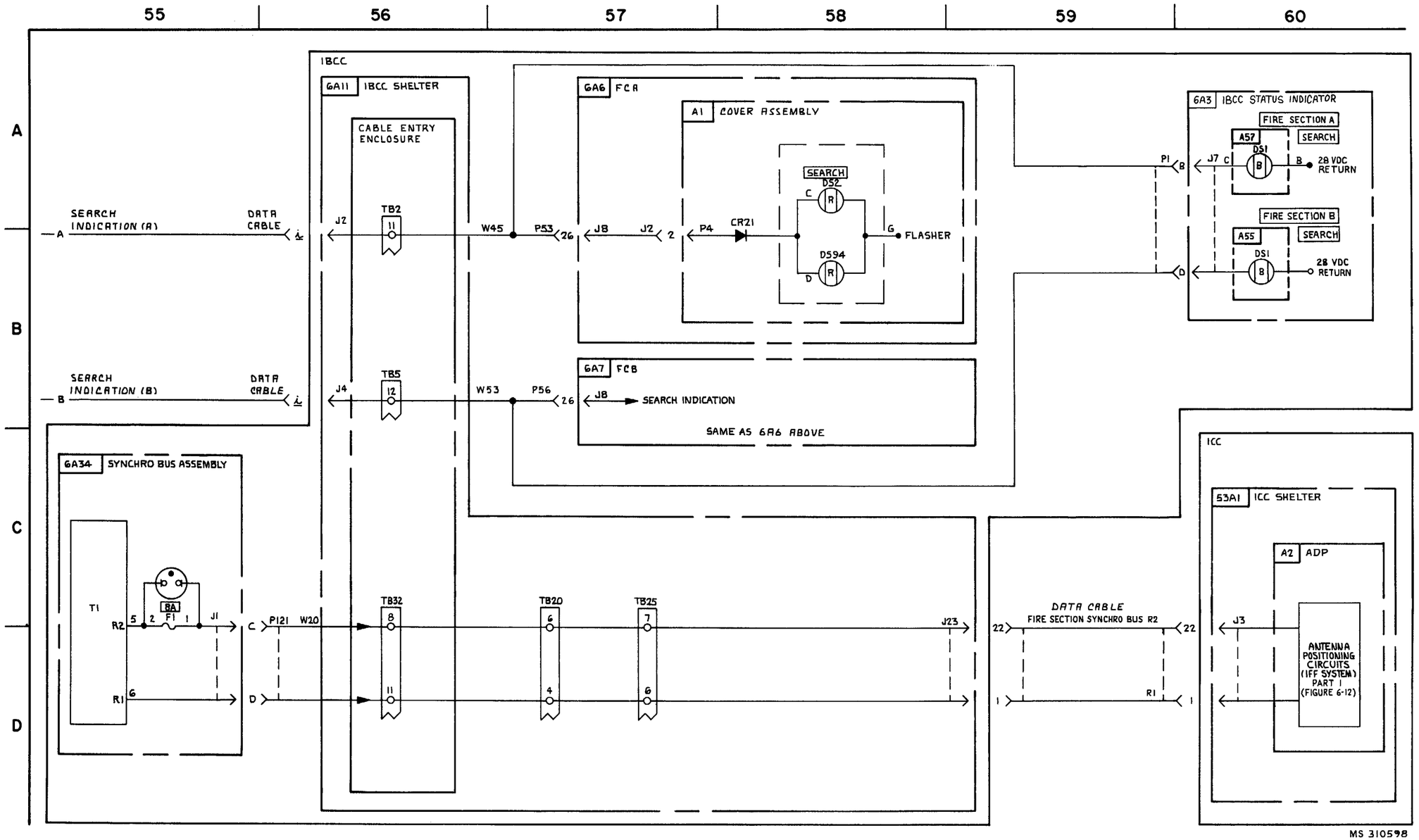

*FIGURE 3-20. HIPIR MANUAL SPEED TRACKING, SPECIAL LOCK, AND AFC HOLD *(T), (SEE NOTE)-- SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 7).*

3-117/3-118 blank

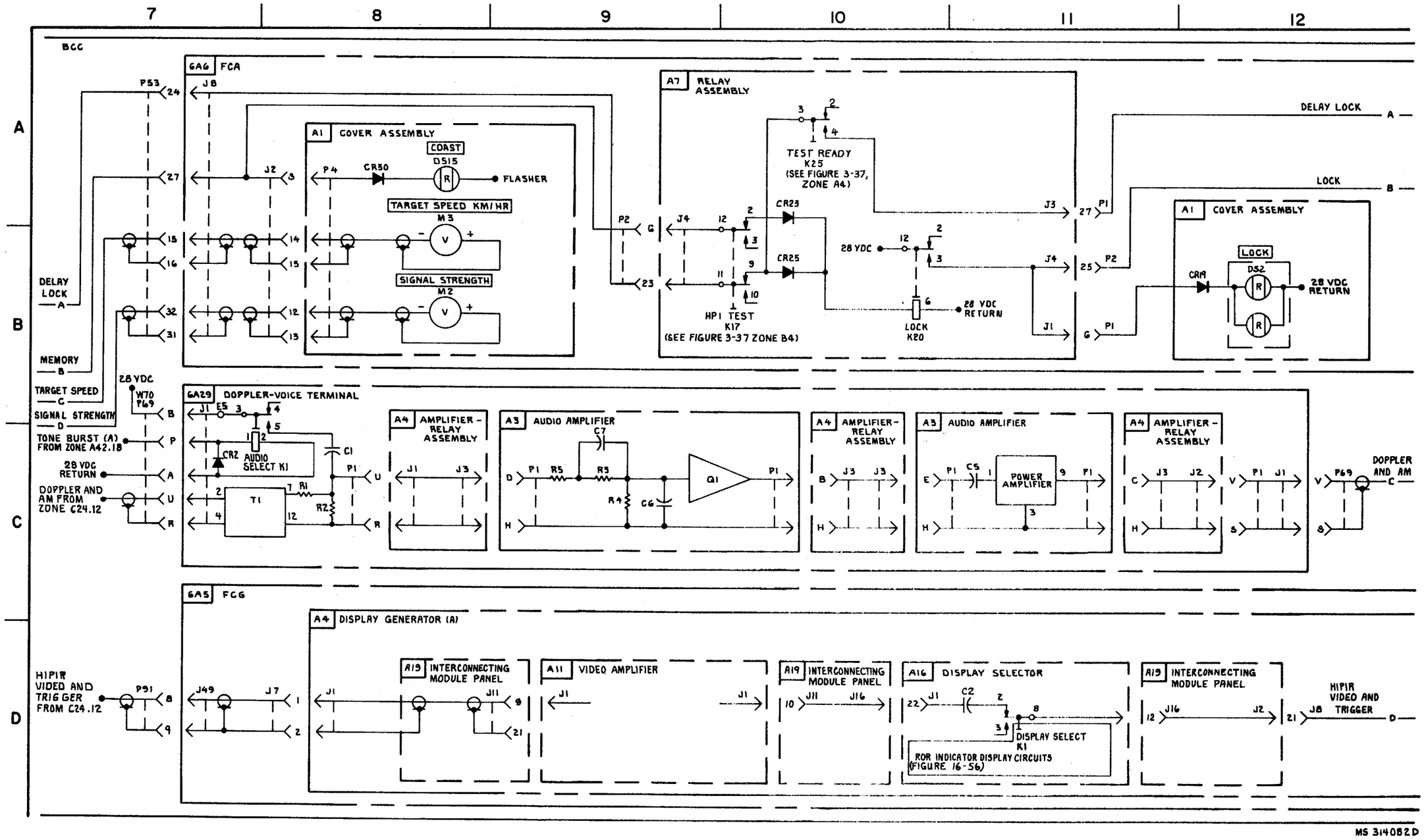

*FIGURE 3-20. HIPIR MANUAL SPEED TRACKING, SPECIAL LOCK,AND AFC HOLD *(T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 7).*

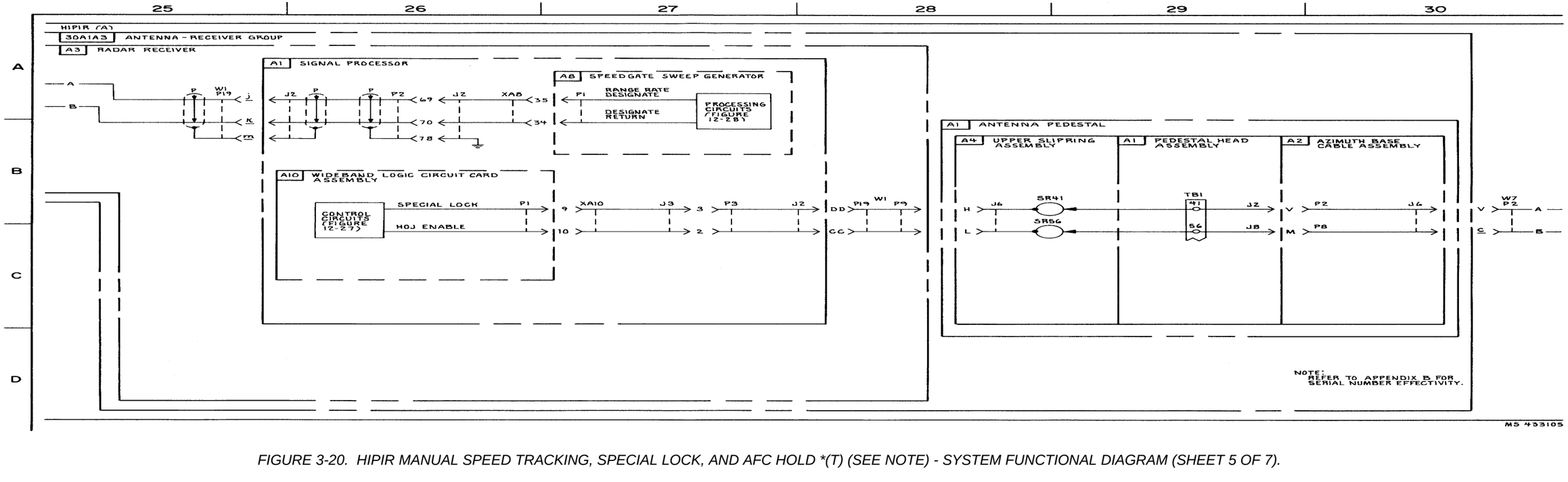

*FIGURE 3-20. HIPIR MANUAL SPEED TRACKING, SPECIAL LOCK, AND AFC HOLD *(T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 7).*

3-121/3-122 blank

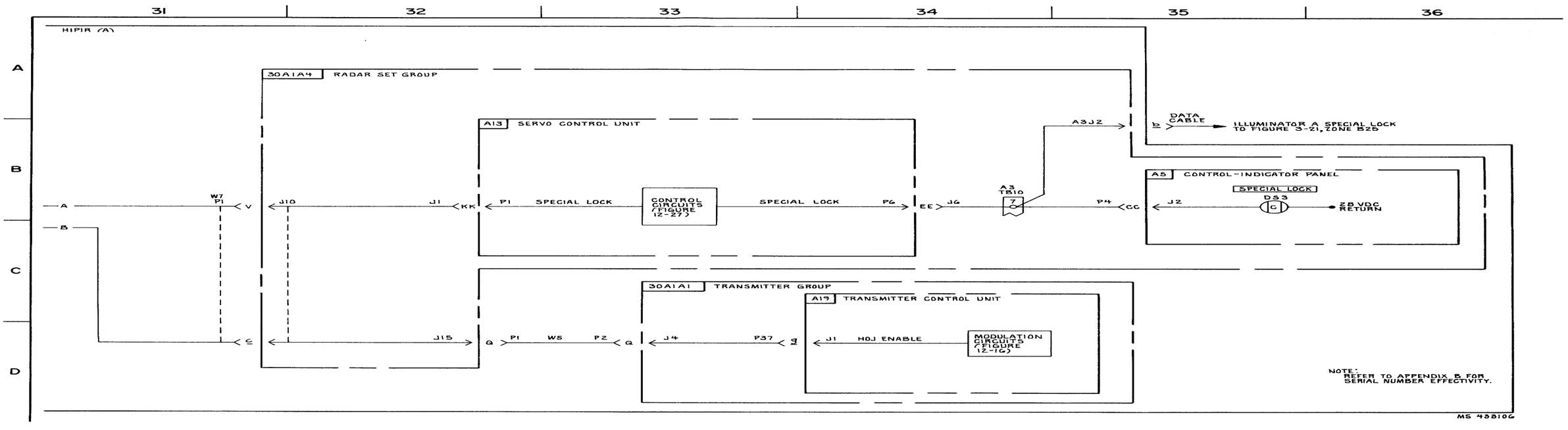

*FIGURE 3-20. HIPIR MANUAL SPEED TRACKING, SPECIAL LOCK, AND AFC HOLD *(T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 7).*

3-123/3-124 blank

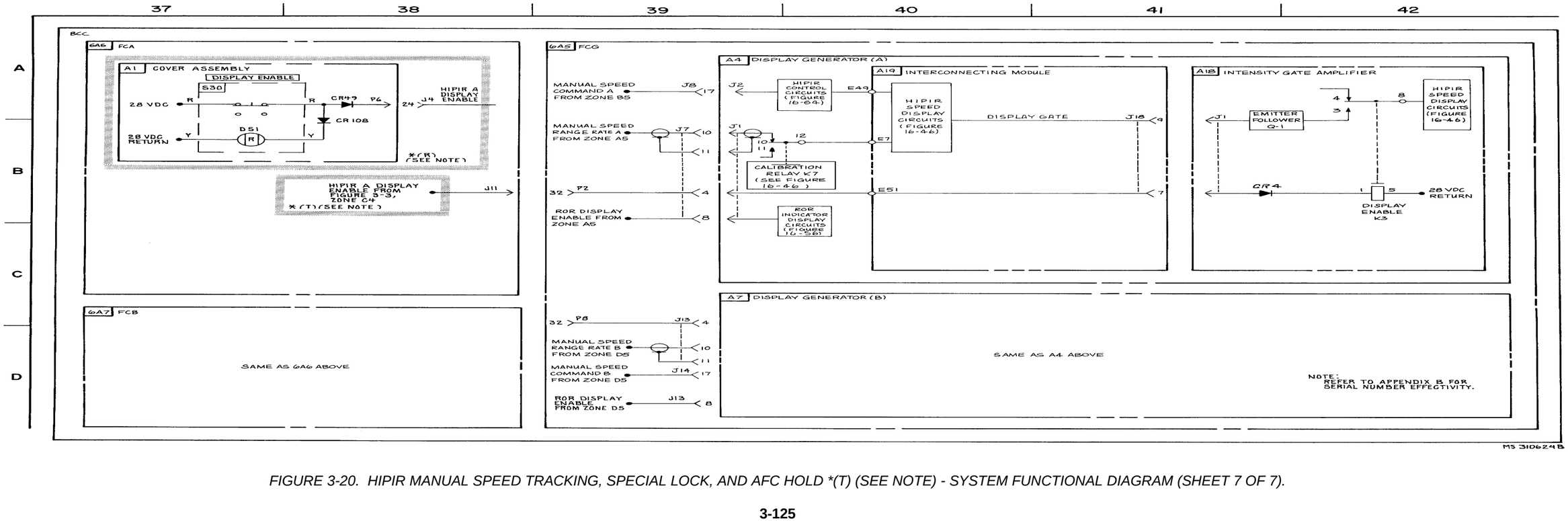

*FIGURE 3-20. HIPIR MANUAL SPEED TRACKING, SPECIAL LOCK, AND AFC HOLD *(T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 7).*

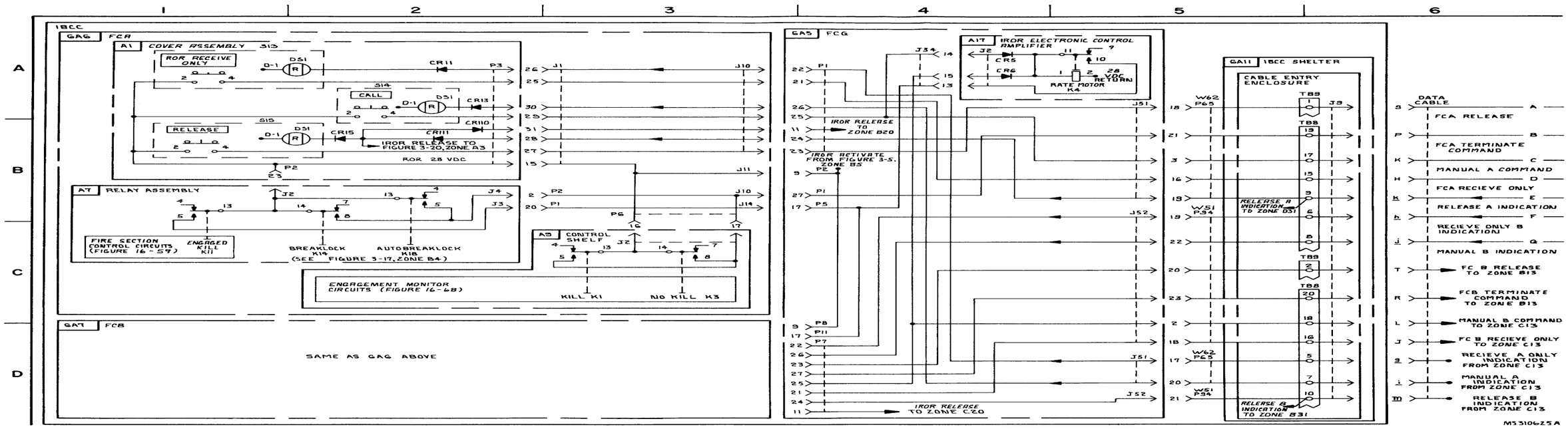

FIGURE 3-20. IROR MODE CONTROL - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 6).

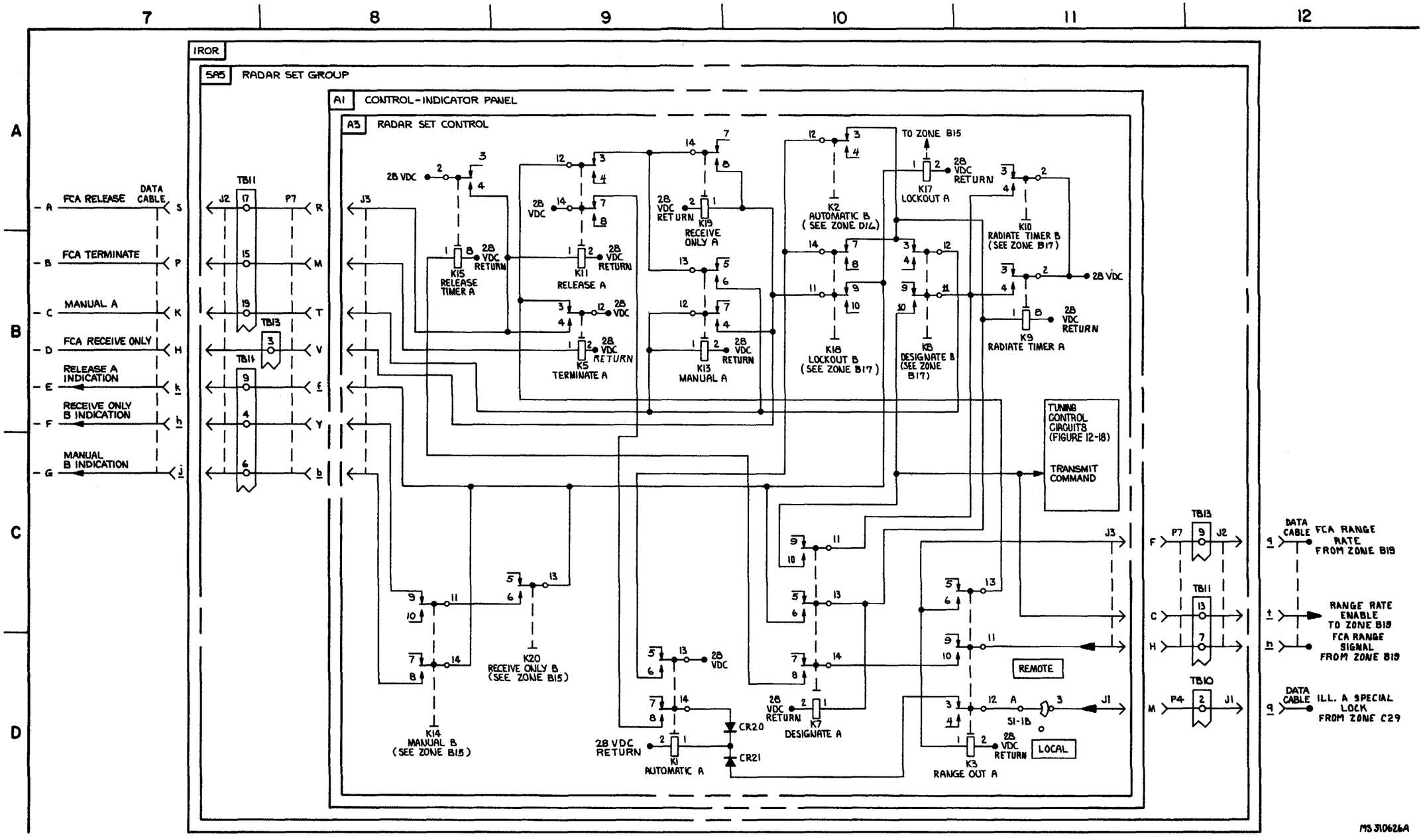

FIGURE 3-21. IROR MODE CONTROL - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 6).

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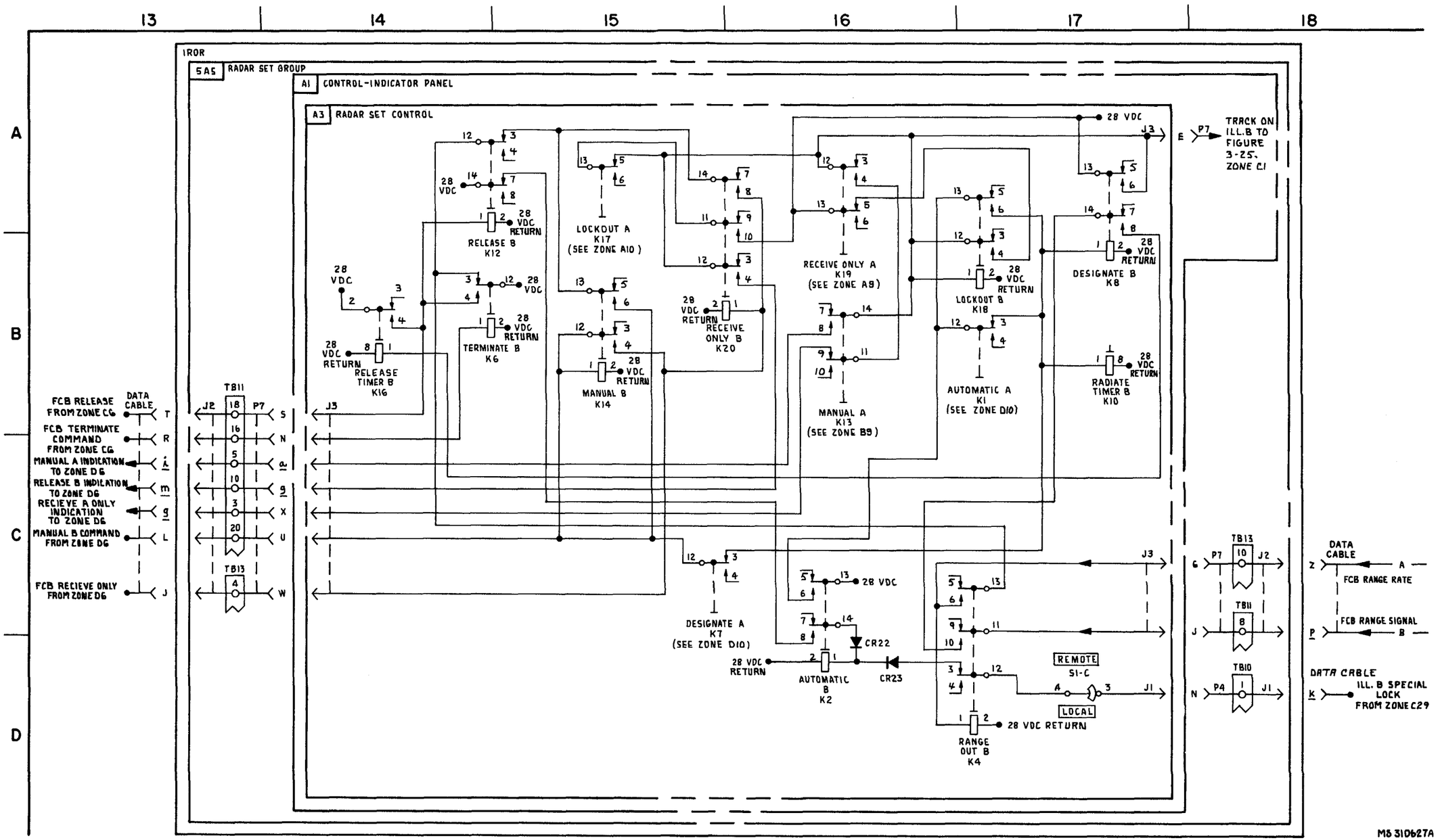

FIGURE 3-21. IROR MODE CONTROL - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 6).

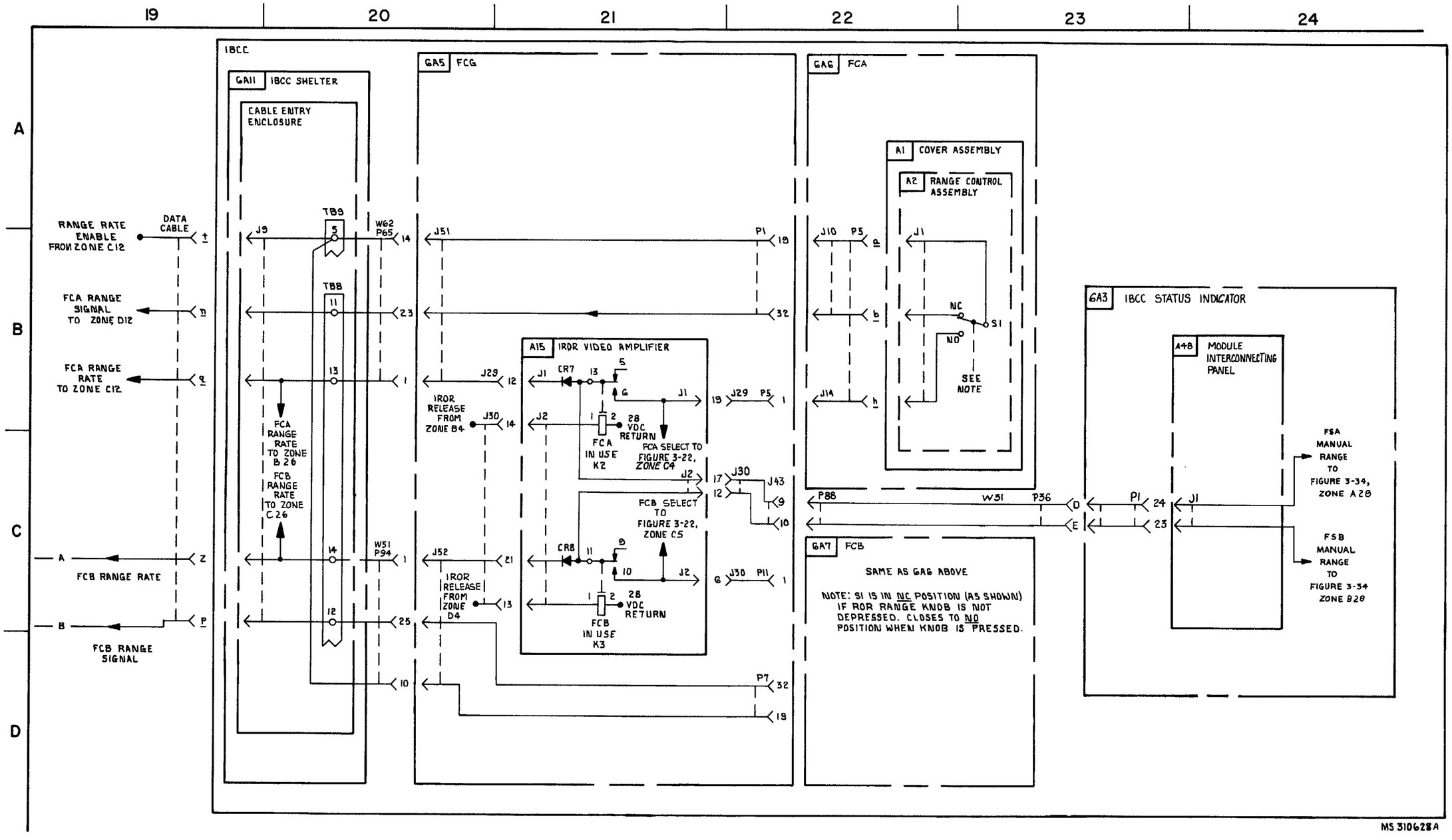

FIGURE 3-21. IROR MODE CONTROL - SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 6).

3-131/3-132 blank

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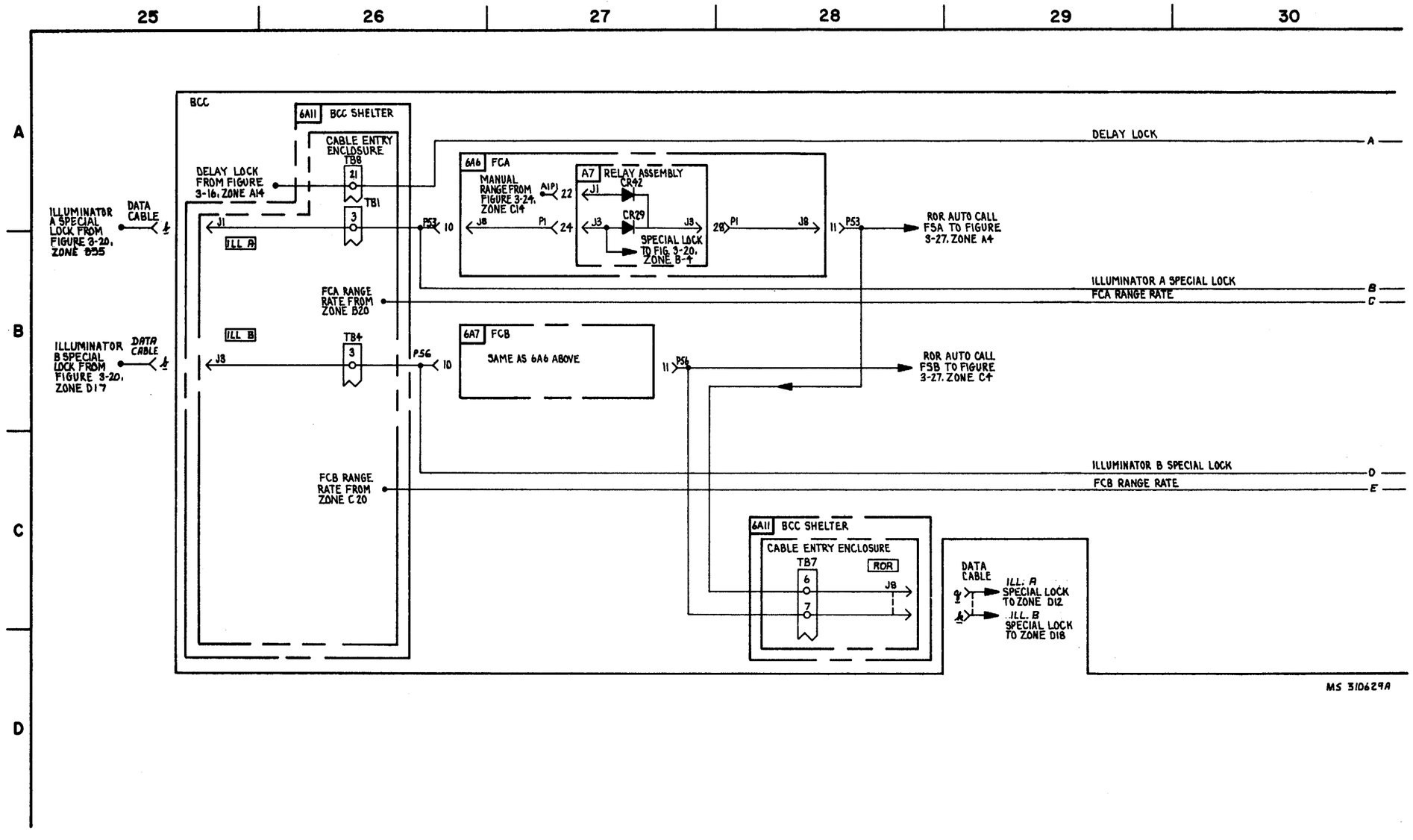

FIGURE 3-21. ROR MODE CONTROL-SYSTEM FUICTIONAL DIAGRAM (SHEET 5 OF 6).

3-133/3-134 blank

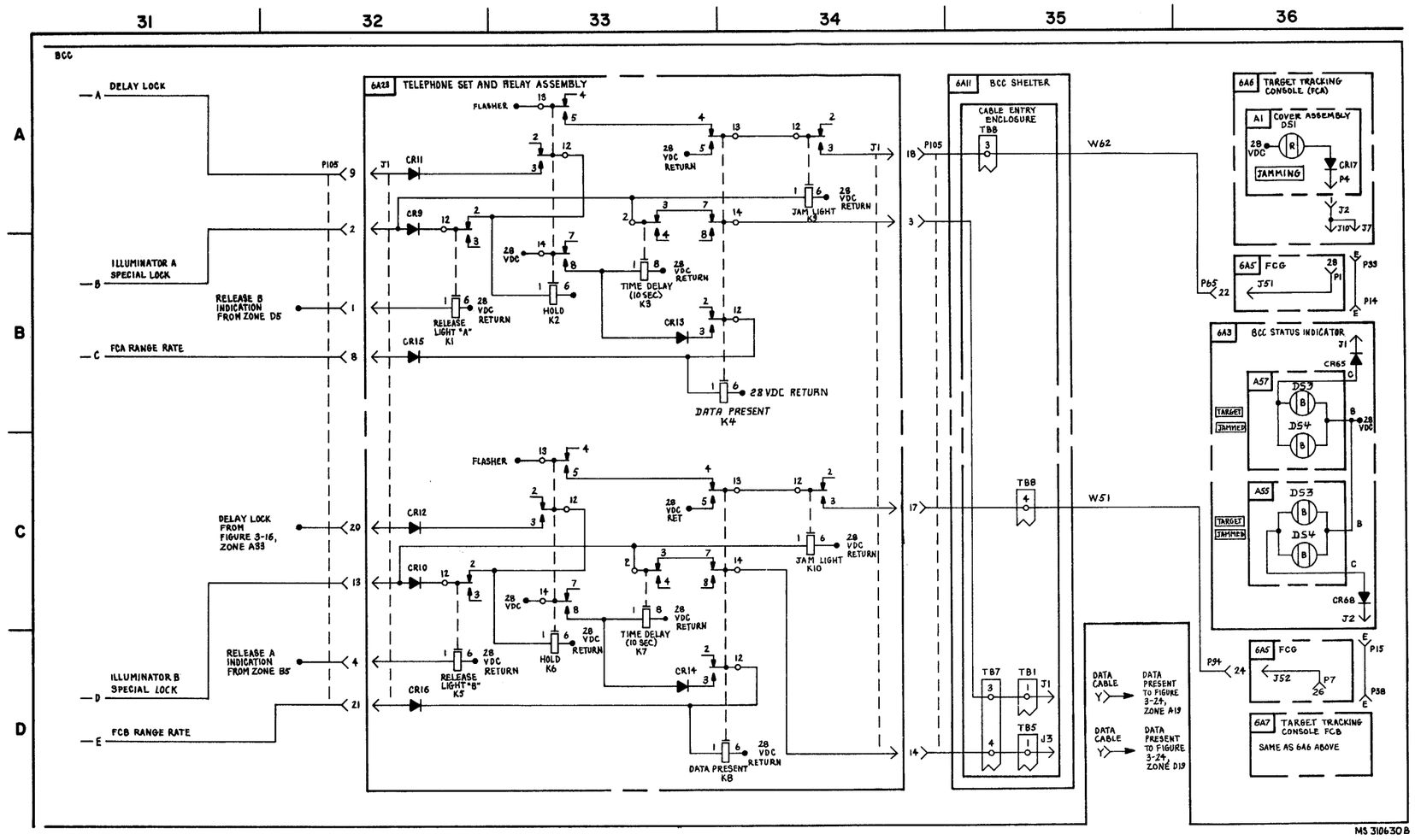

FIGURE 3-21. ROR MODE CONTROL - SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 6).

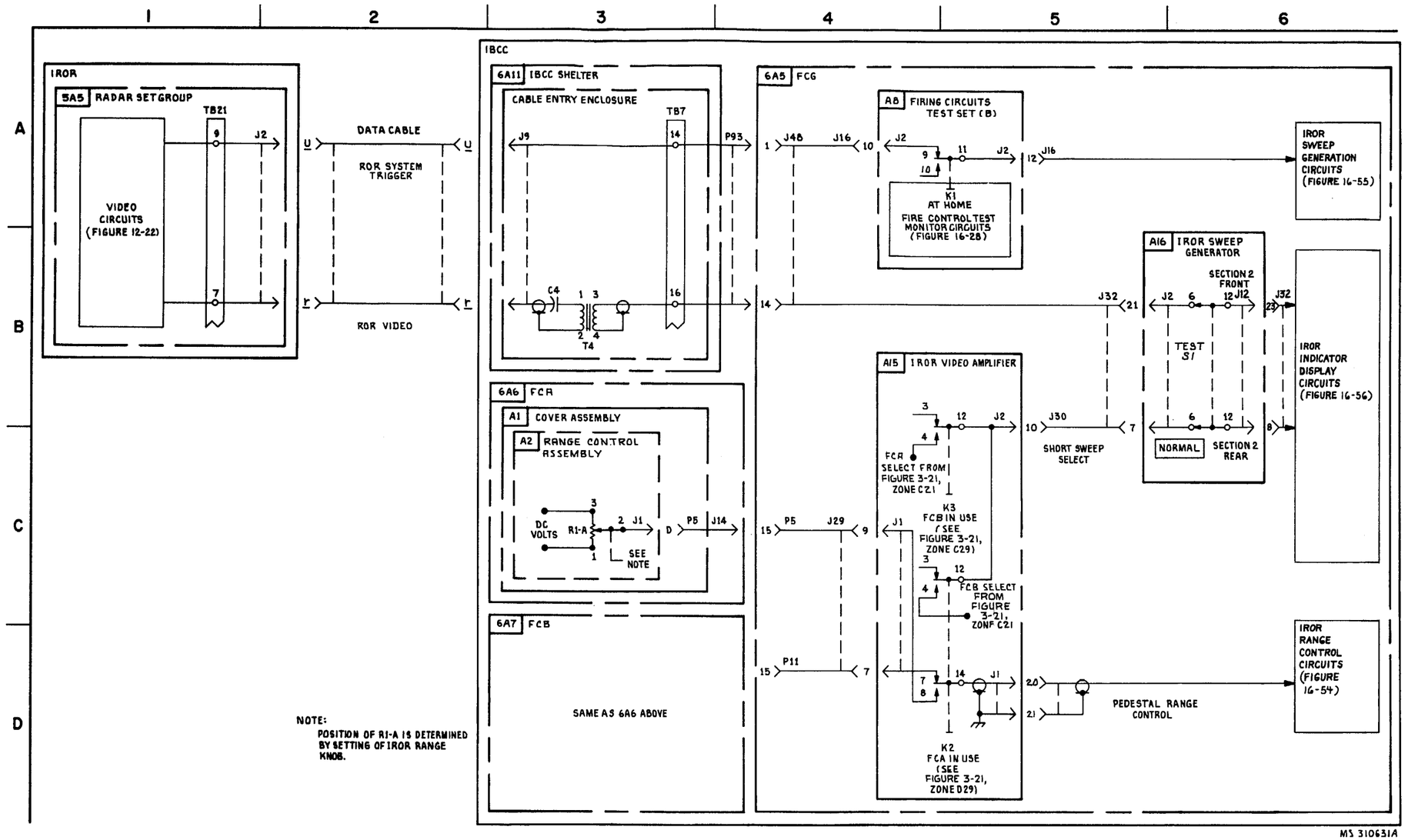

FIGURE 3-22. IROR SWEEP AND VIDEO-SYSTEM FUNCTIONAL DIAGRAM.

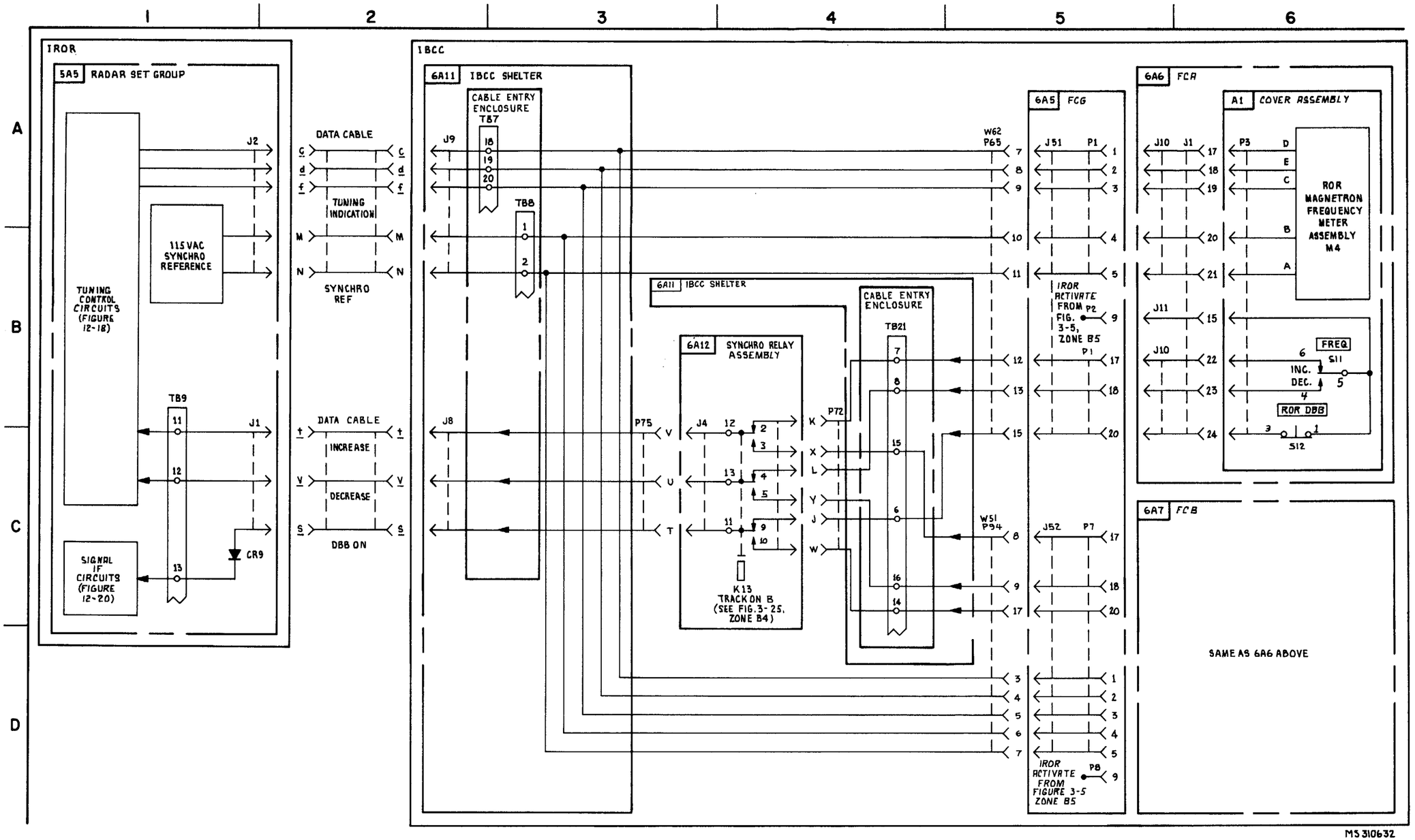

FIGURE 3-23. IROR MAGNETRON TUNING AND DBB- SYSTEM FUNCTIONAL DIAGRAM.

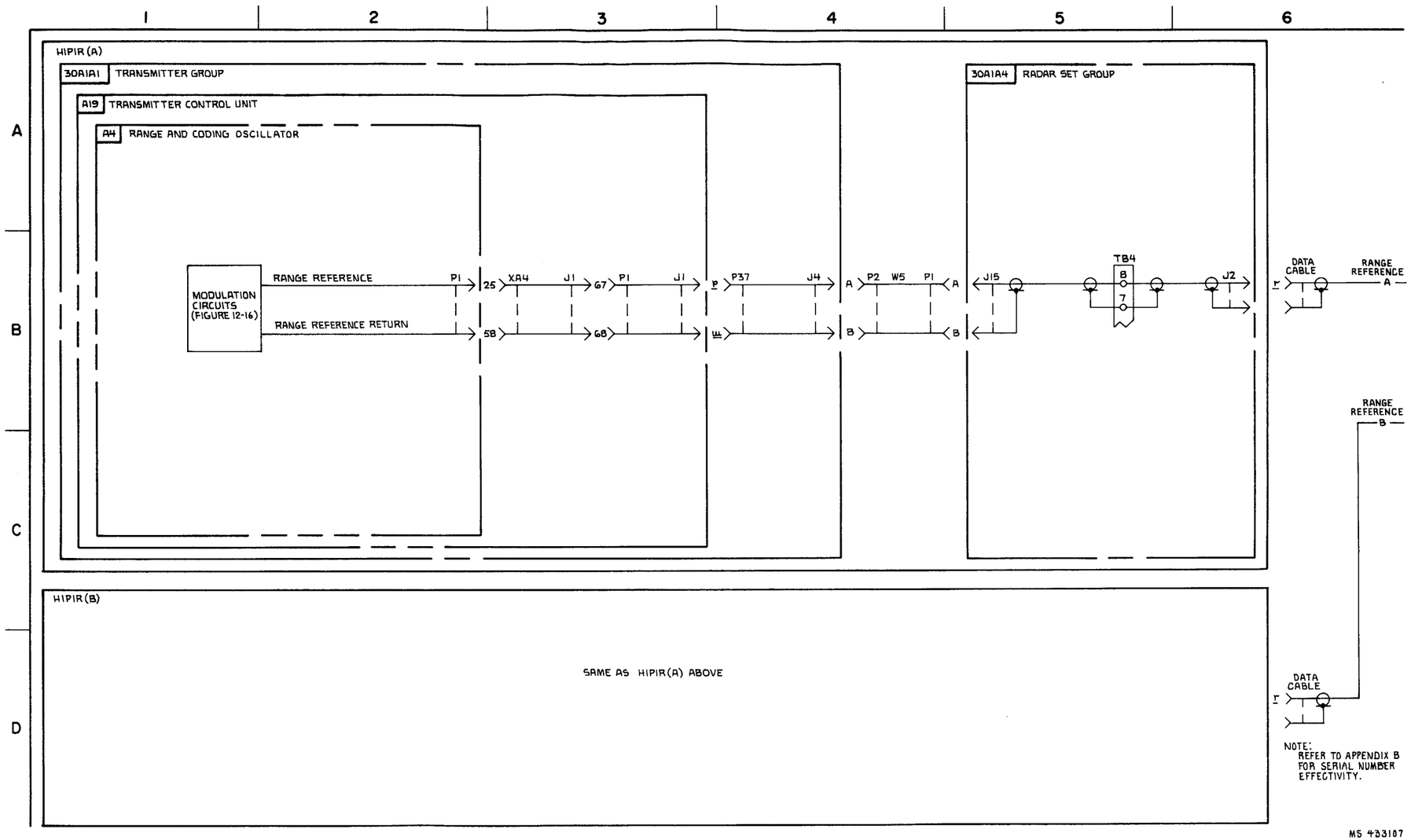

*FIGURE 3-24. MANUAL RANGE DURING JAMMING *(T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 4) .*

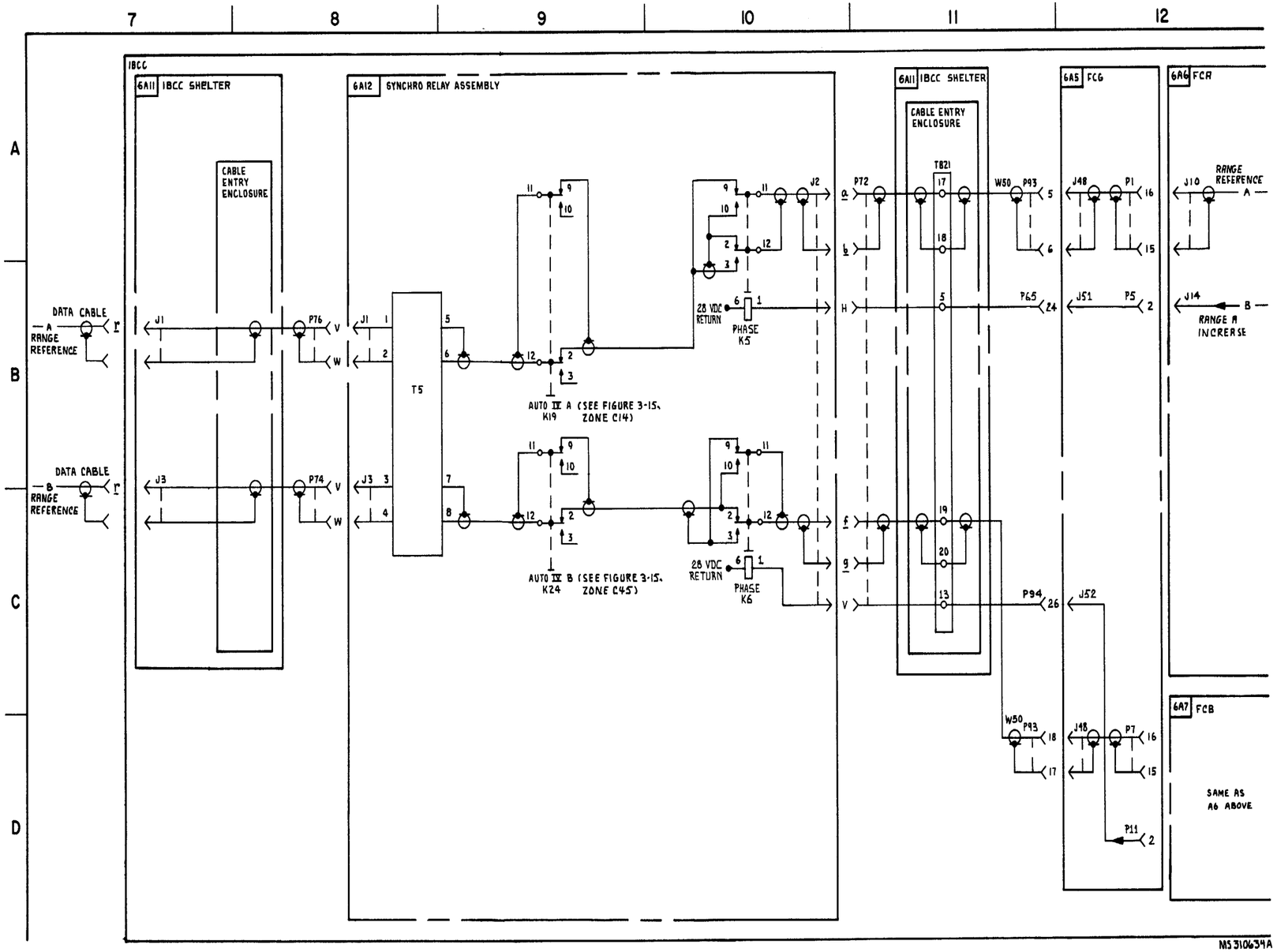

FIGURE 3-24. MANUAL RANGE DURING JAMMING-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 4).

3-139/3-140 blank

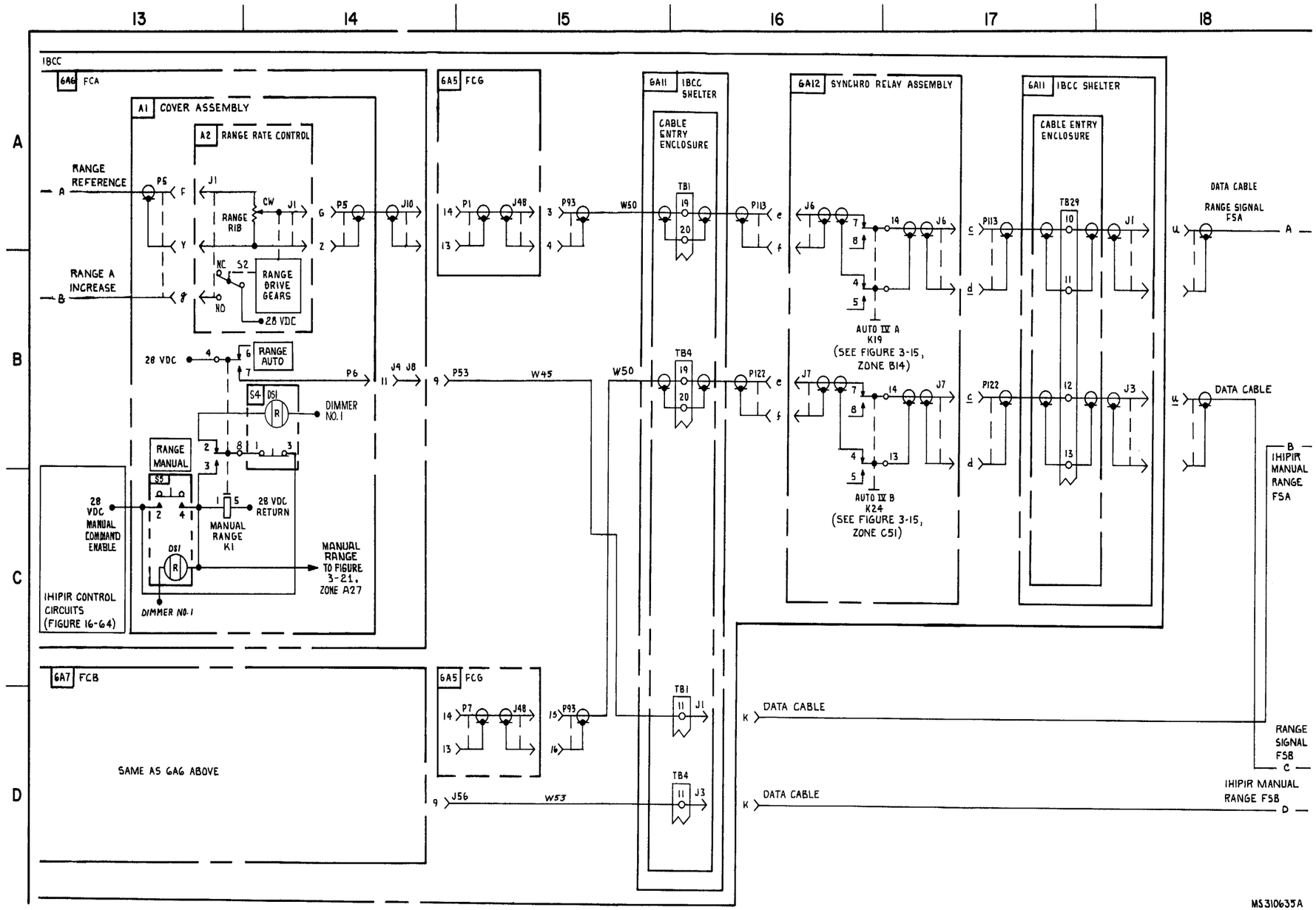

FIGURE 3-24. MANUAL RANGE DURING JAMMING-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 4).

3-141/3-142 blank

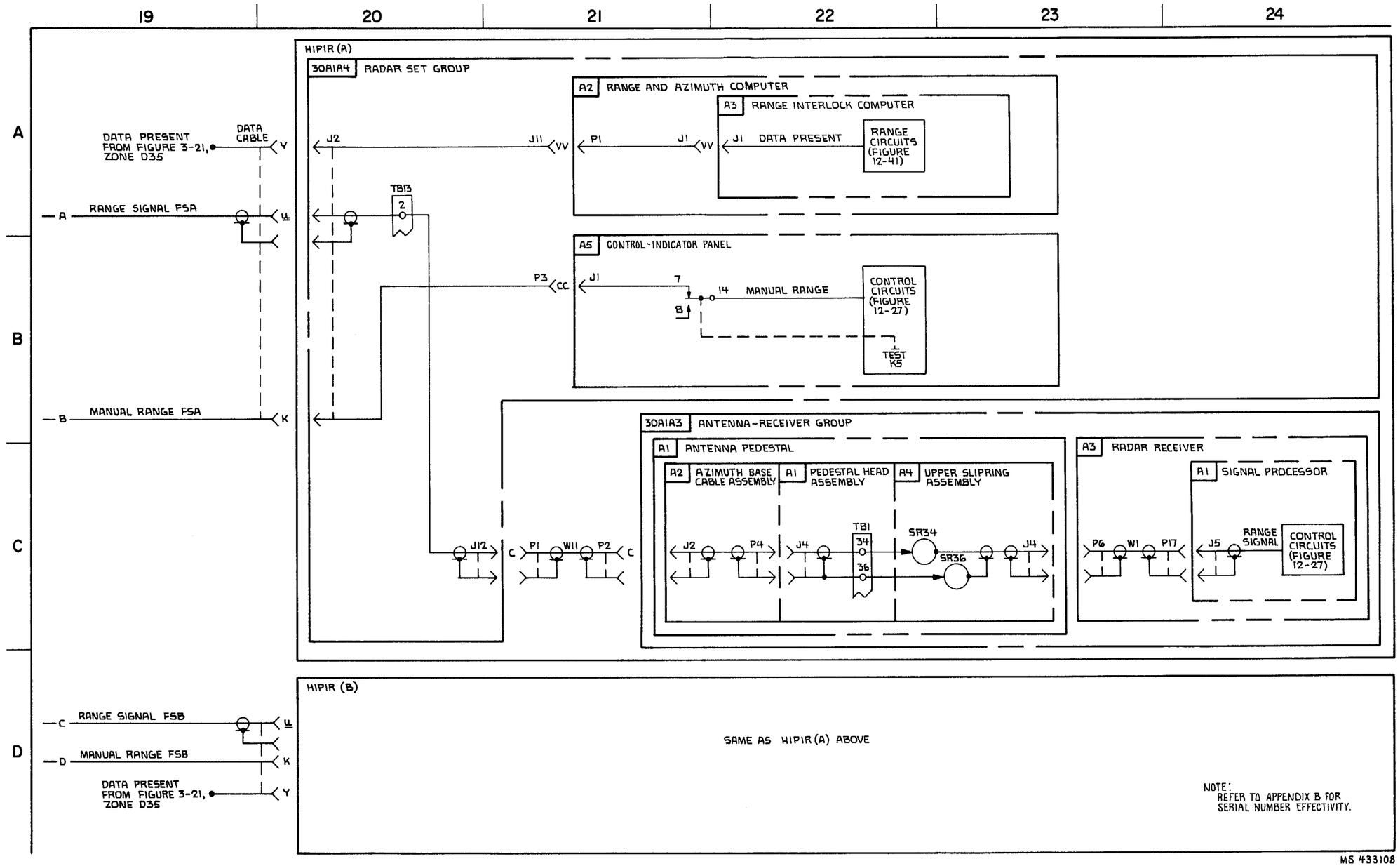

*FIGURE 3-24. MANUAL RANGE DURING JAMMING *(T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 4).*

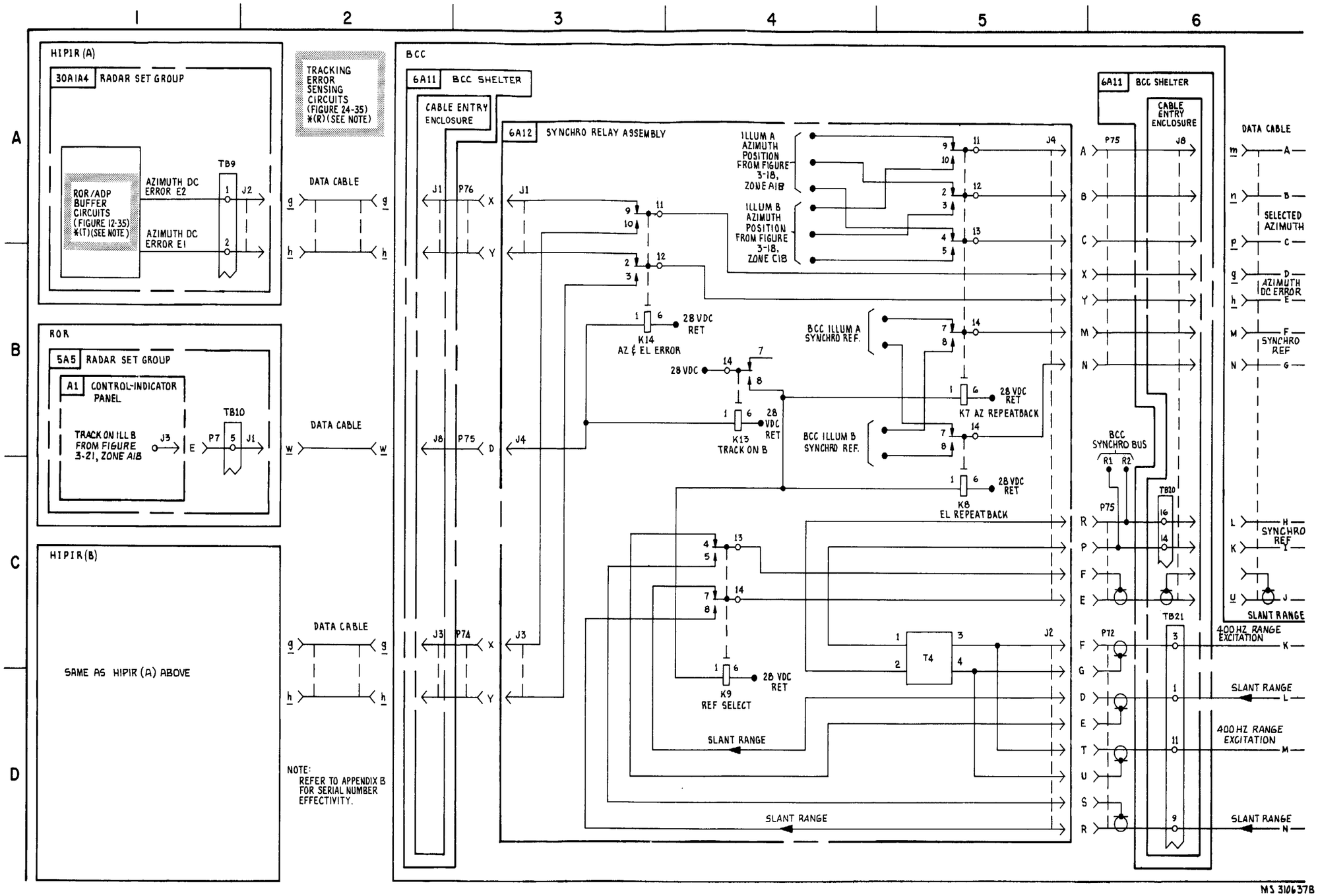

FIGURE 3-25. ROR AZIMUTH POSITIONING-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).

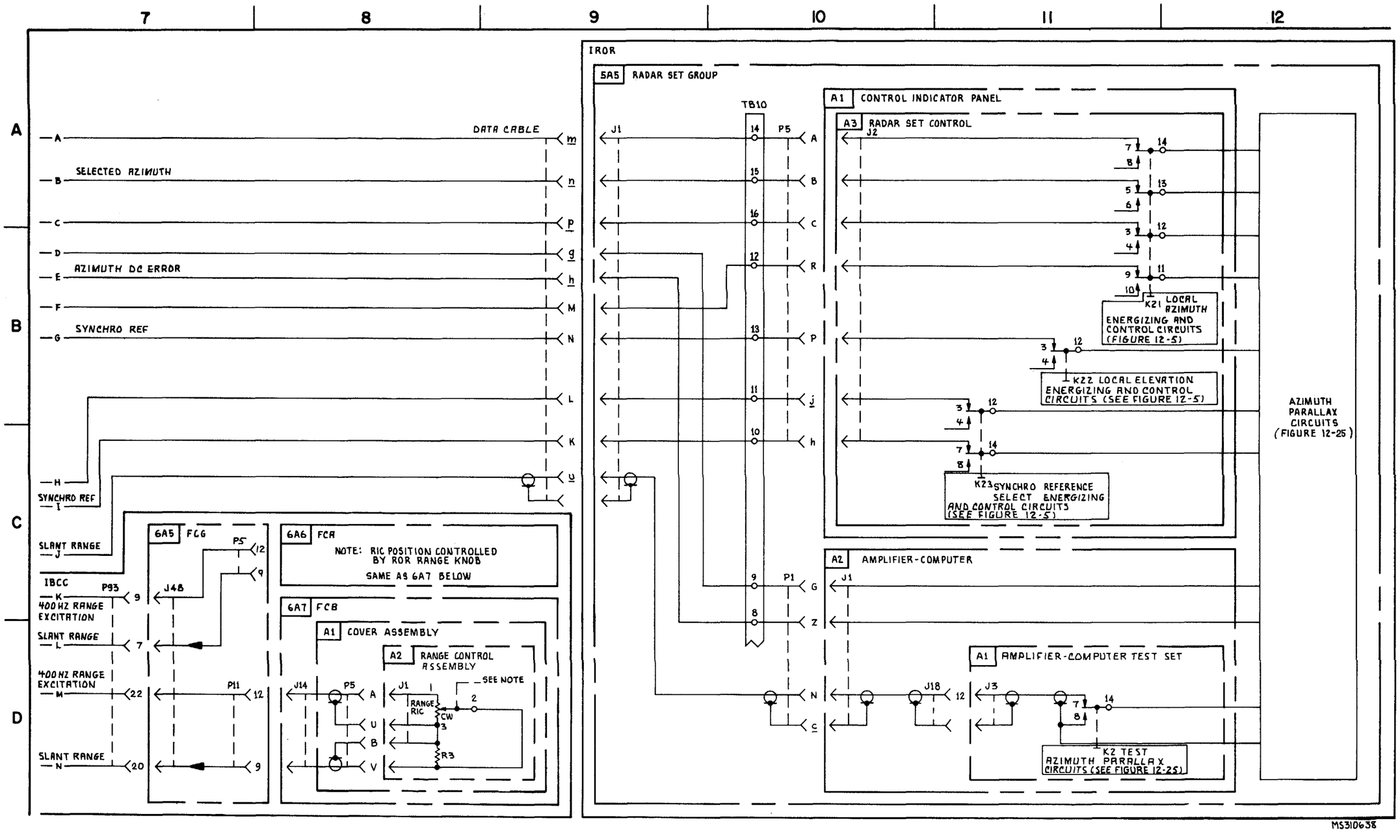

FIGURE 3-25. IROR AZIMUTH POSITIONING - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).

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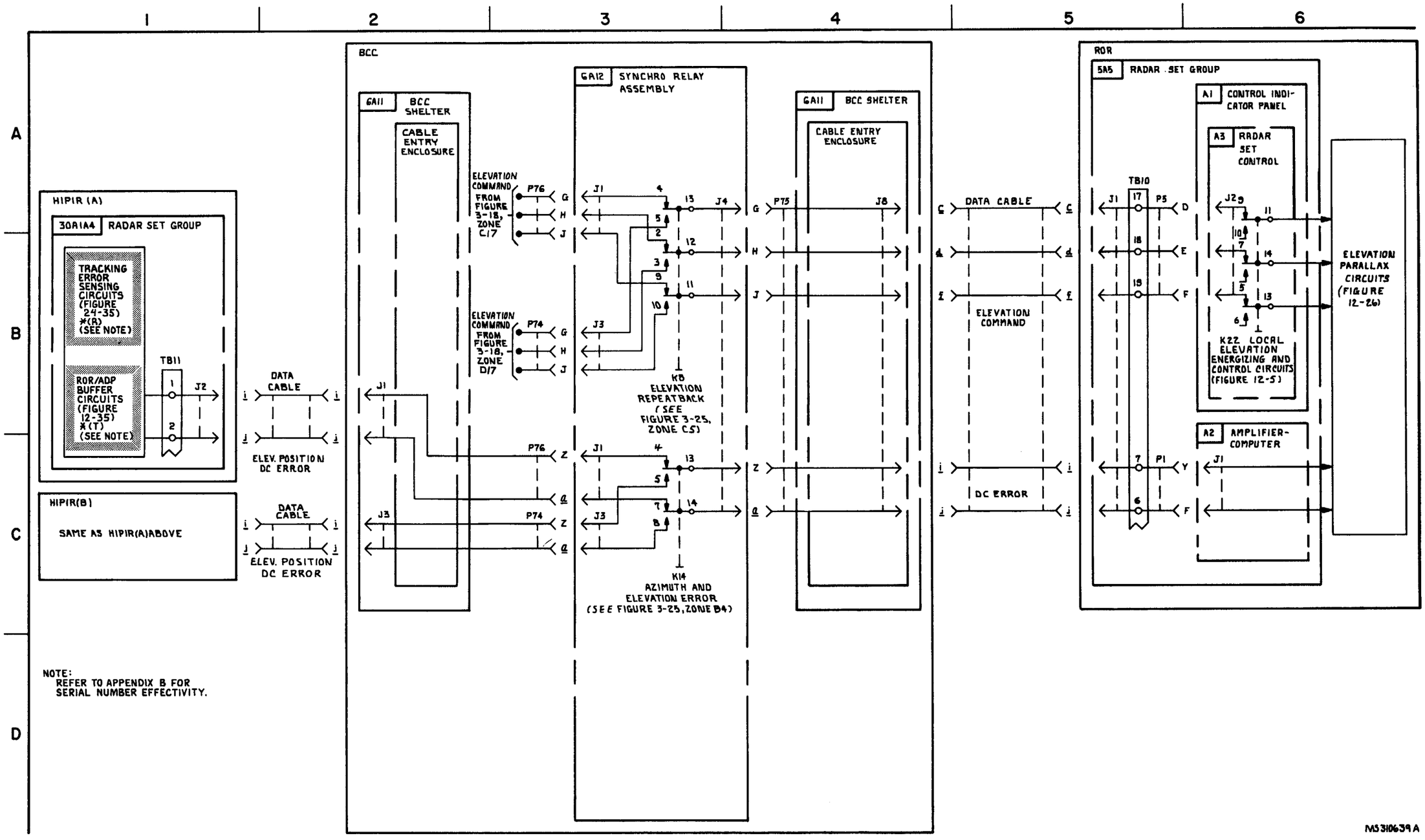

FIGURE 3-26. ROR ELEVATION POSITIONING - SYSTEM FUNCTIONAL DIAGRAM

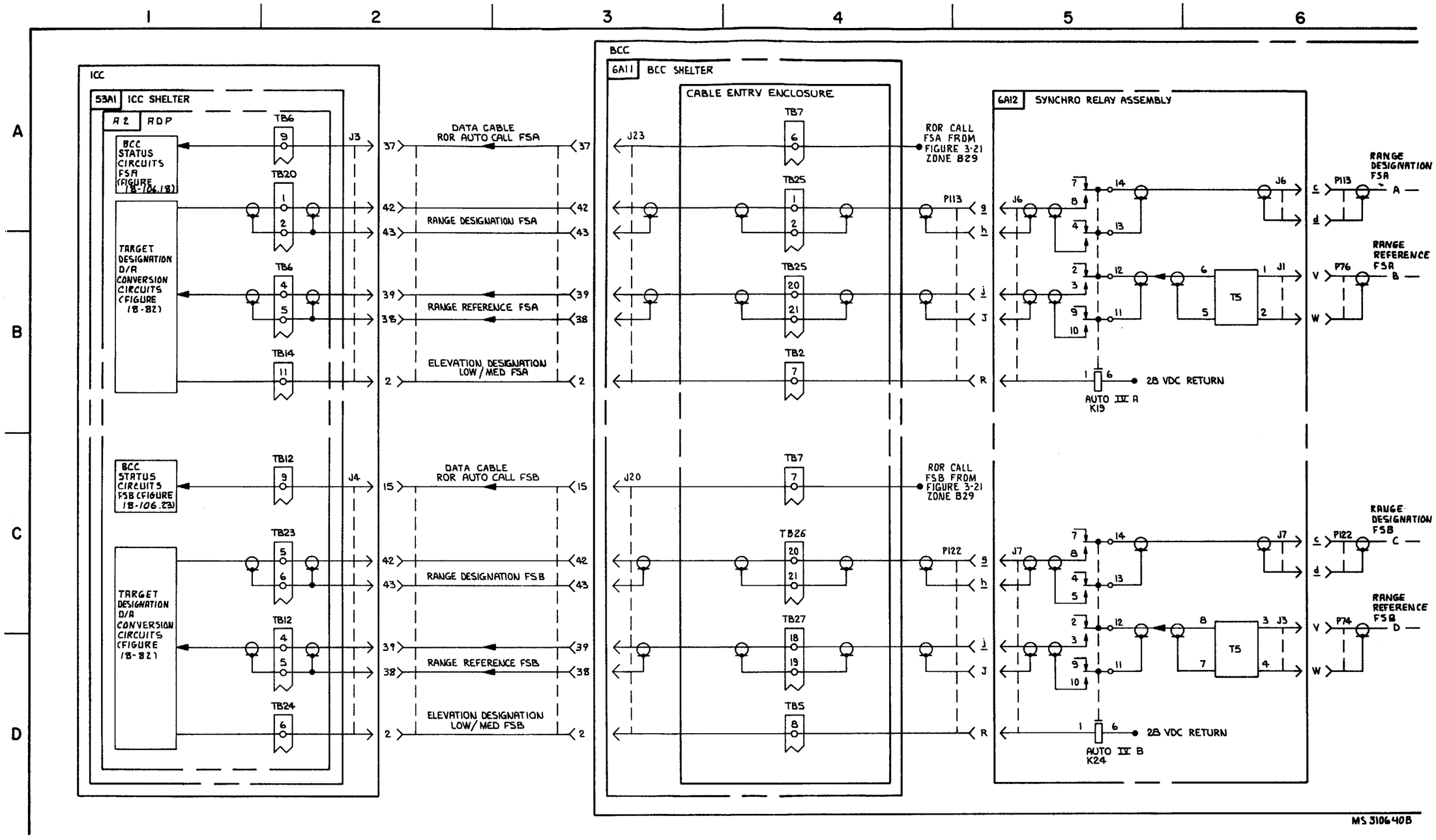

FIGURE 3-27. AUTO RANGE DURING JAMMING - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).

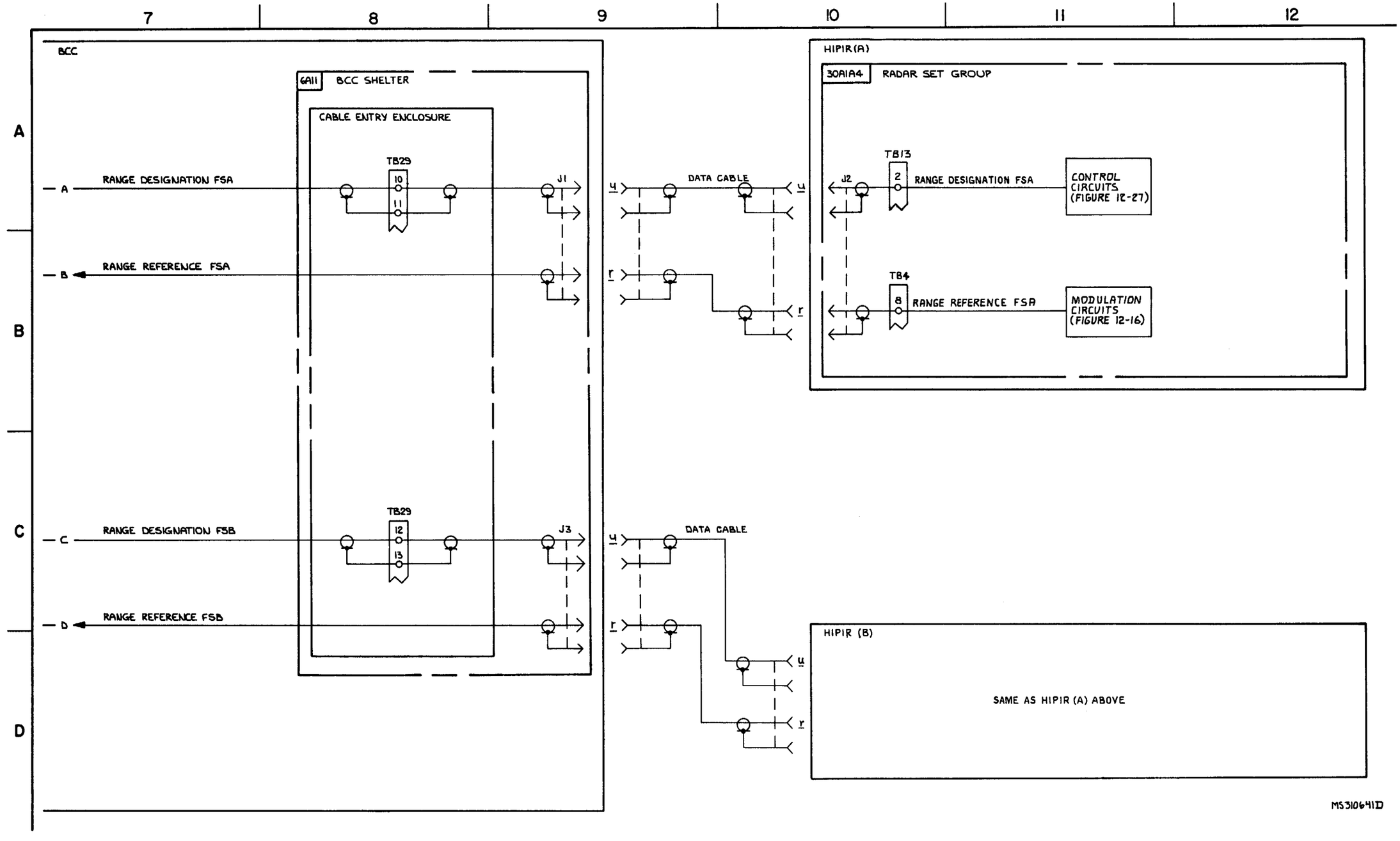

FIGURE 3-27. RUTO RCU RING JAMMIG - SYSTEM FTIMRL DIGRAM (SHEET 2 OF 2).*

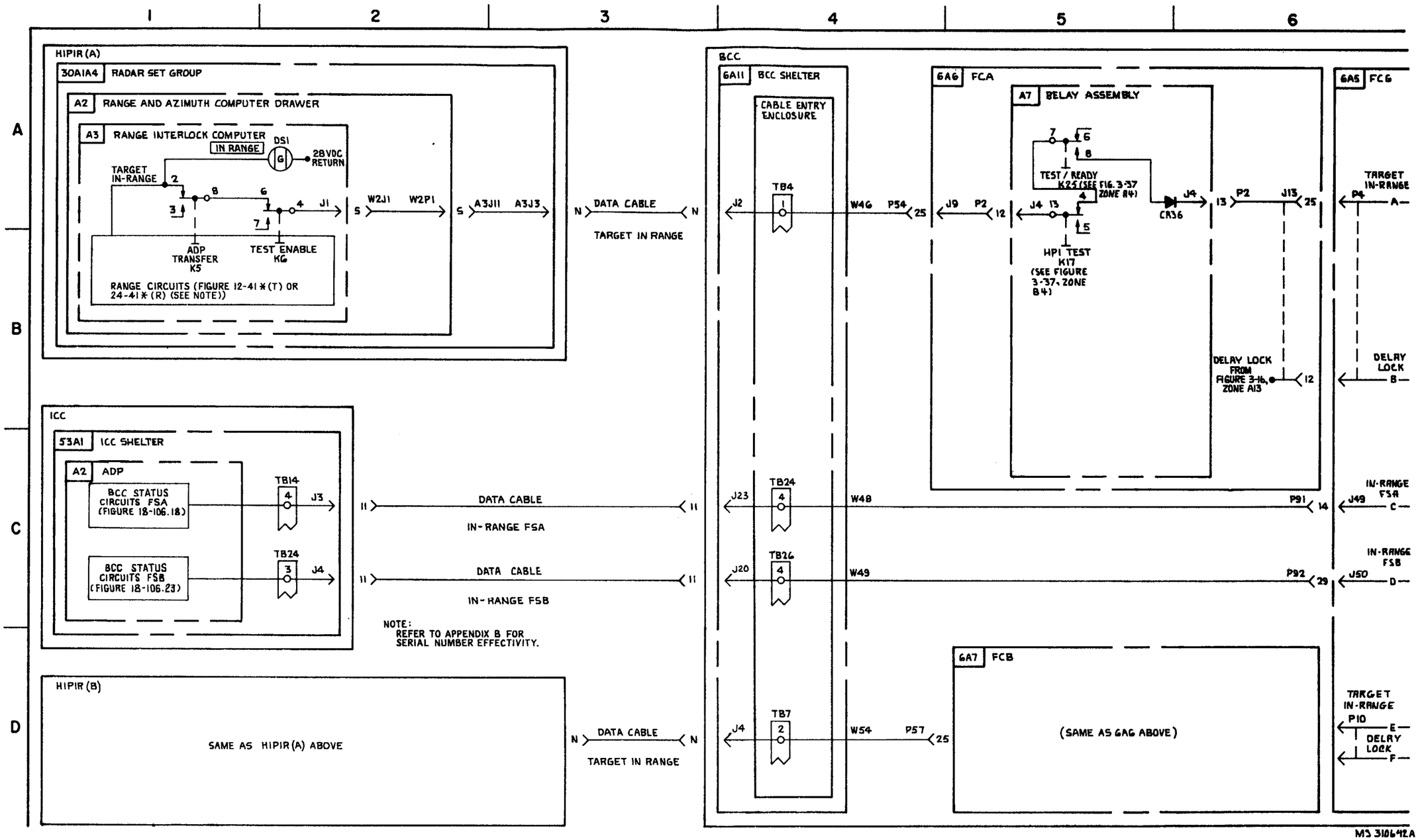

FIGURE 3-28. TARGET IN RANGE-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2)

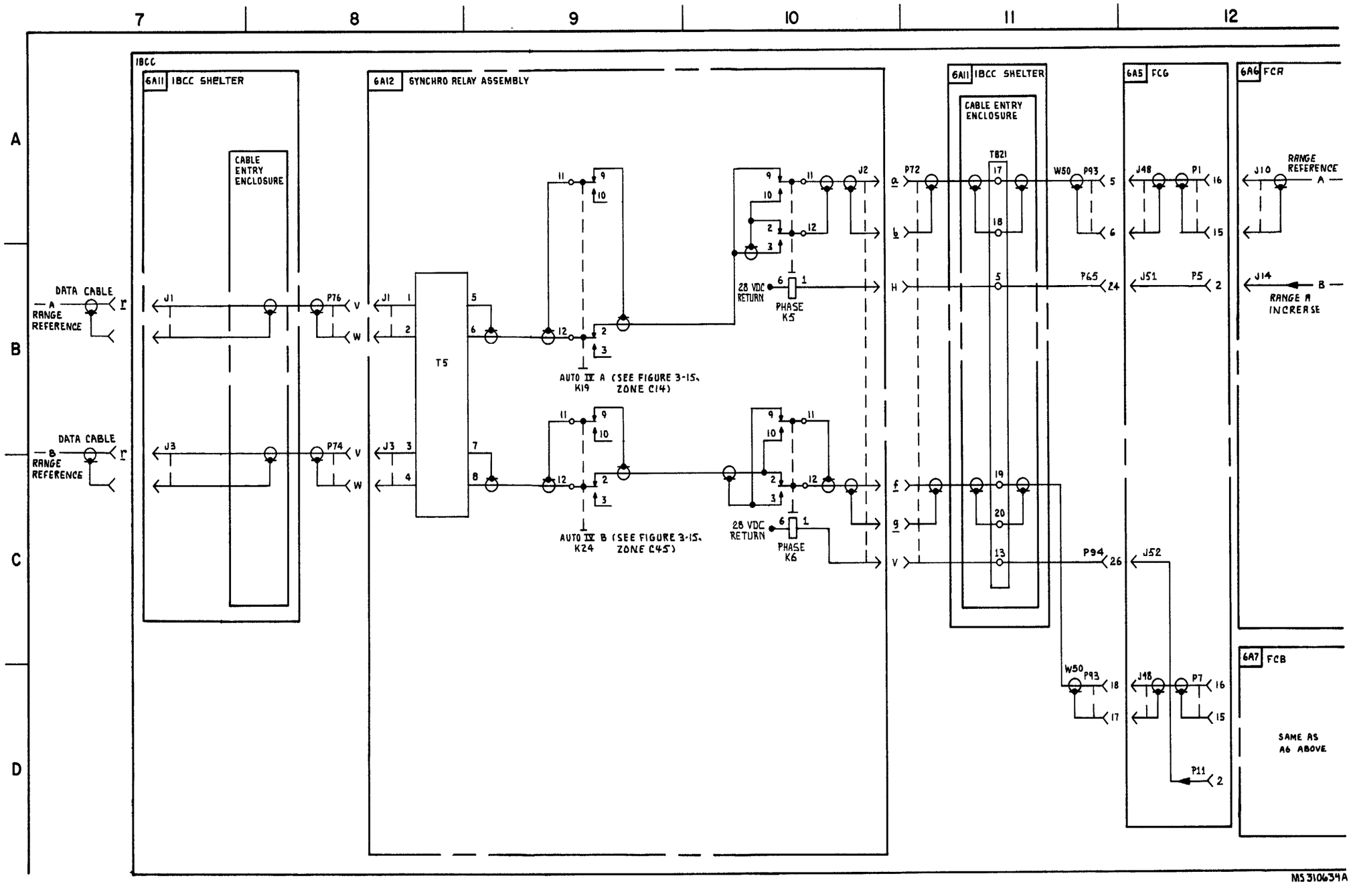

FIGURE 3-28. TARGET IN RANGE-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).

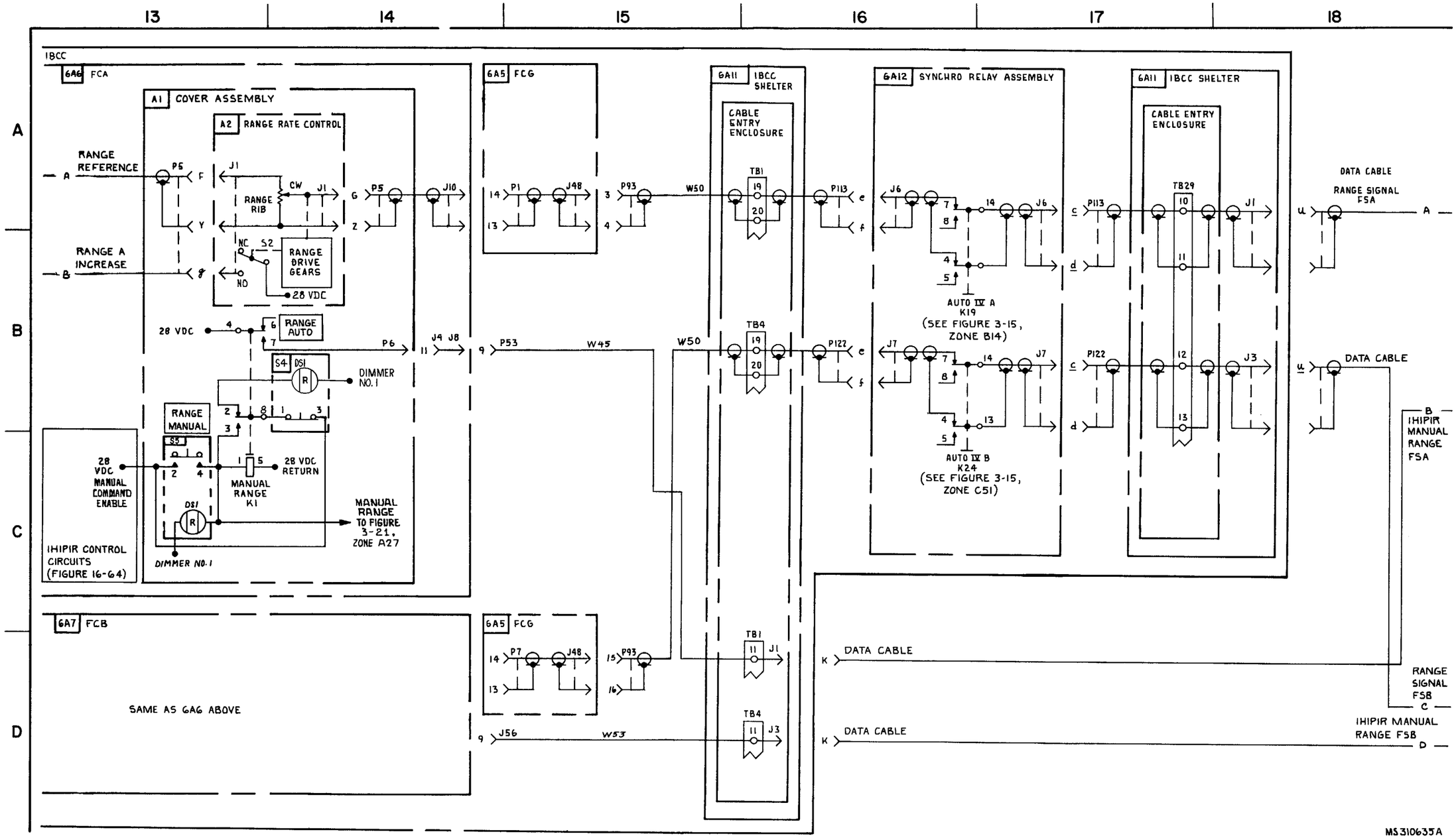

FIGURE 3-29. FIRE COMMAND-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 17).

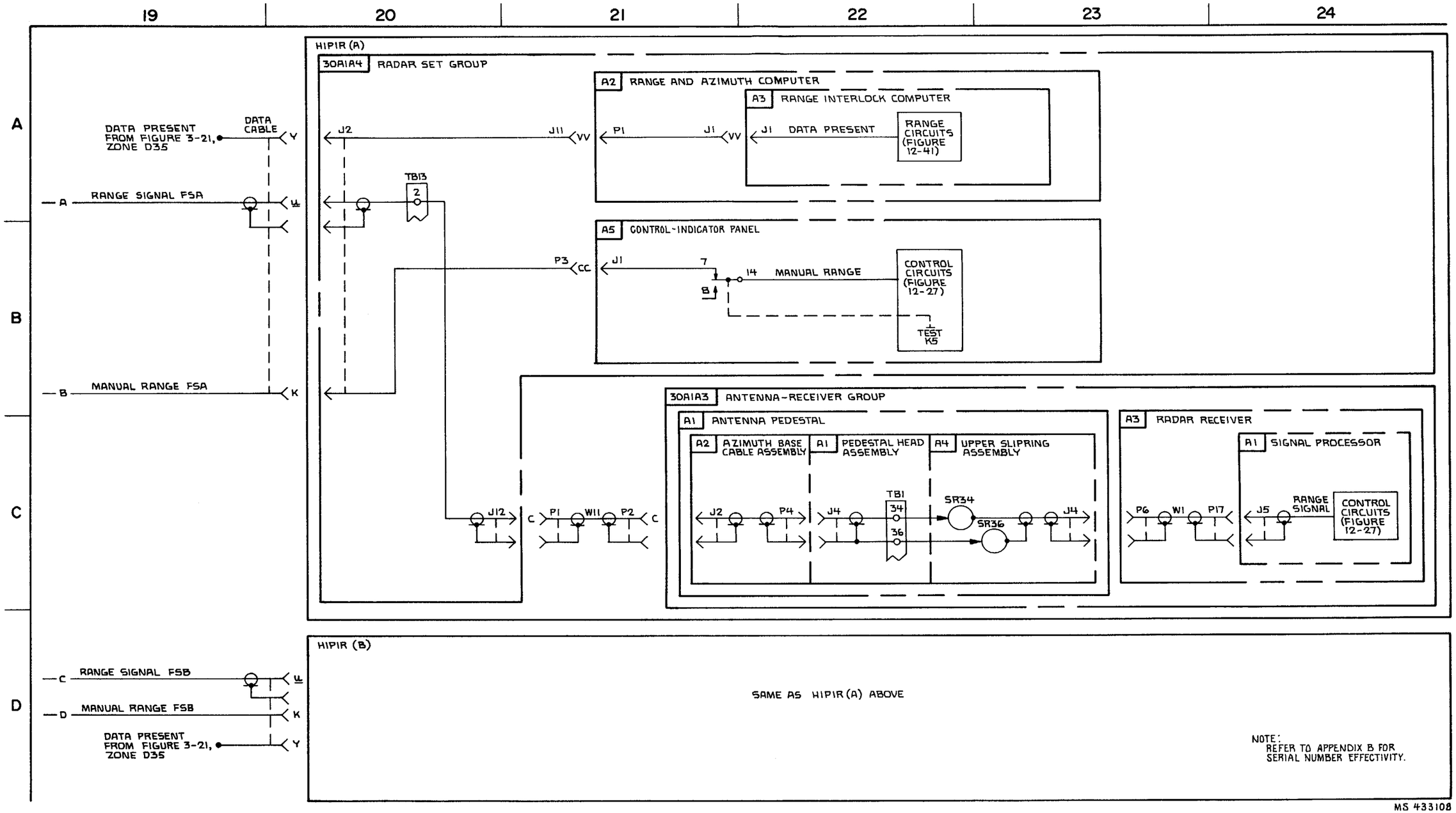

FIGURE 3-29. FIRE COMMAND-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 17).

3-153 /3-154 blank

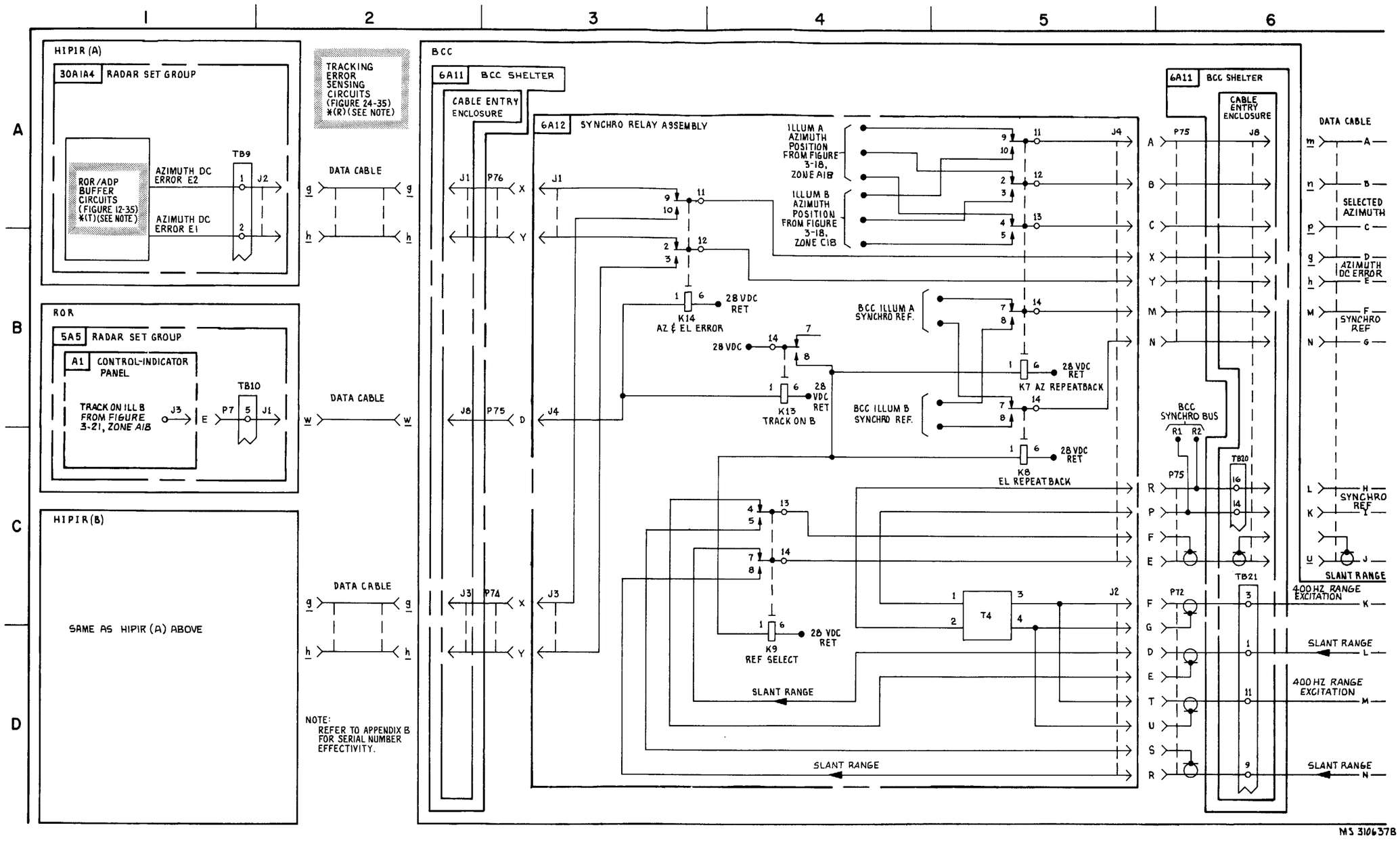

FIGURE 3-29. FIRE-COMMAND SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 17).

3-155/3-156 blank

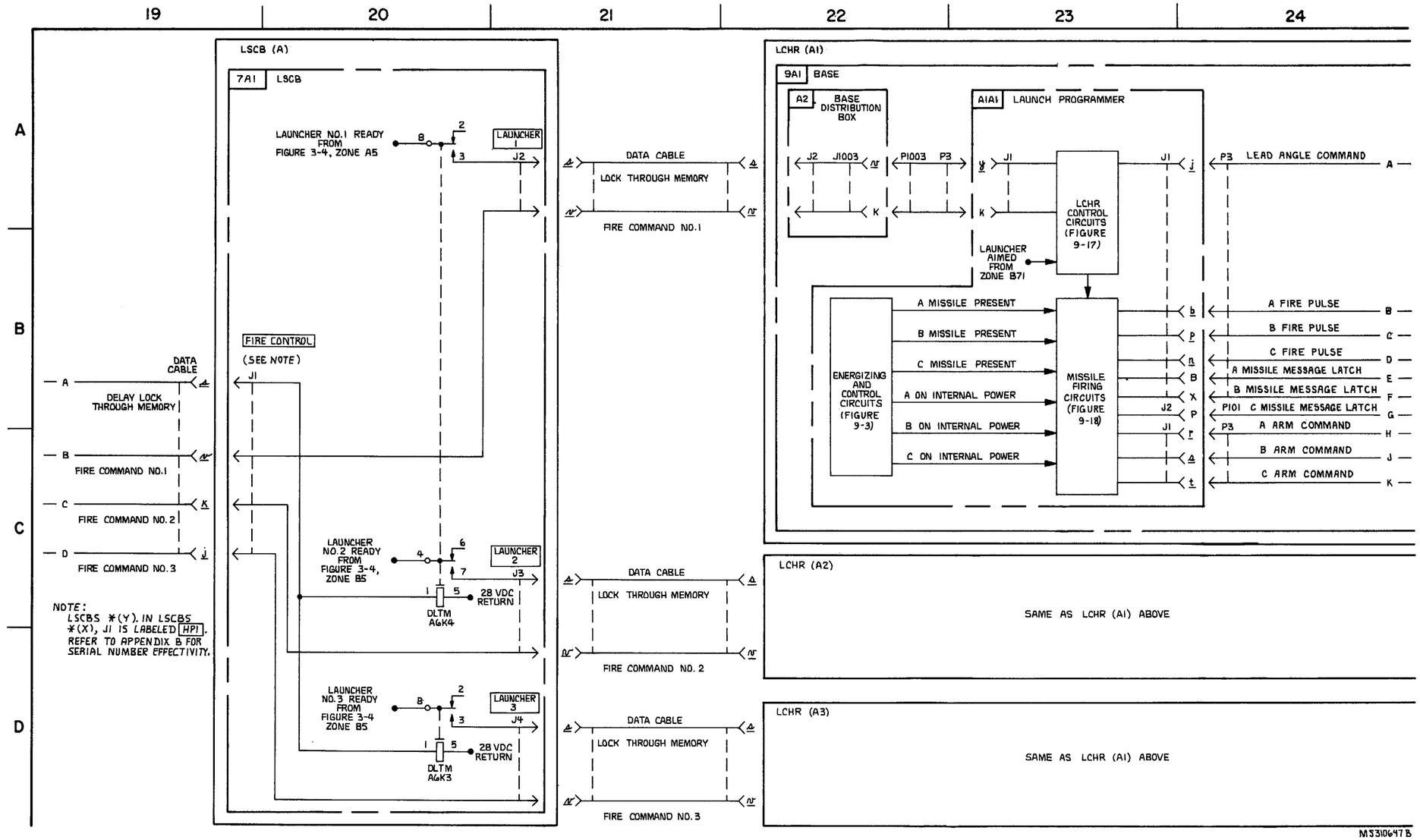

FIGURE 3-29. FIRE COMMAND - SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 17).

3-157/3-158 blank

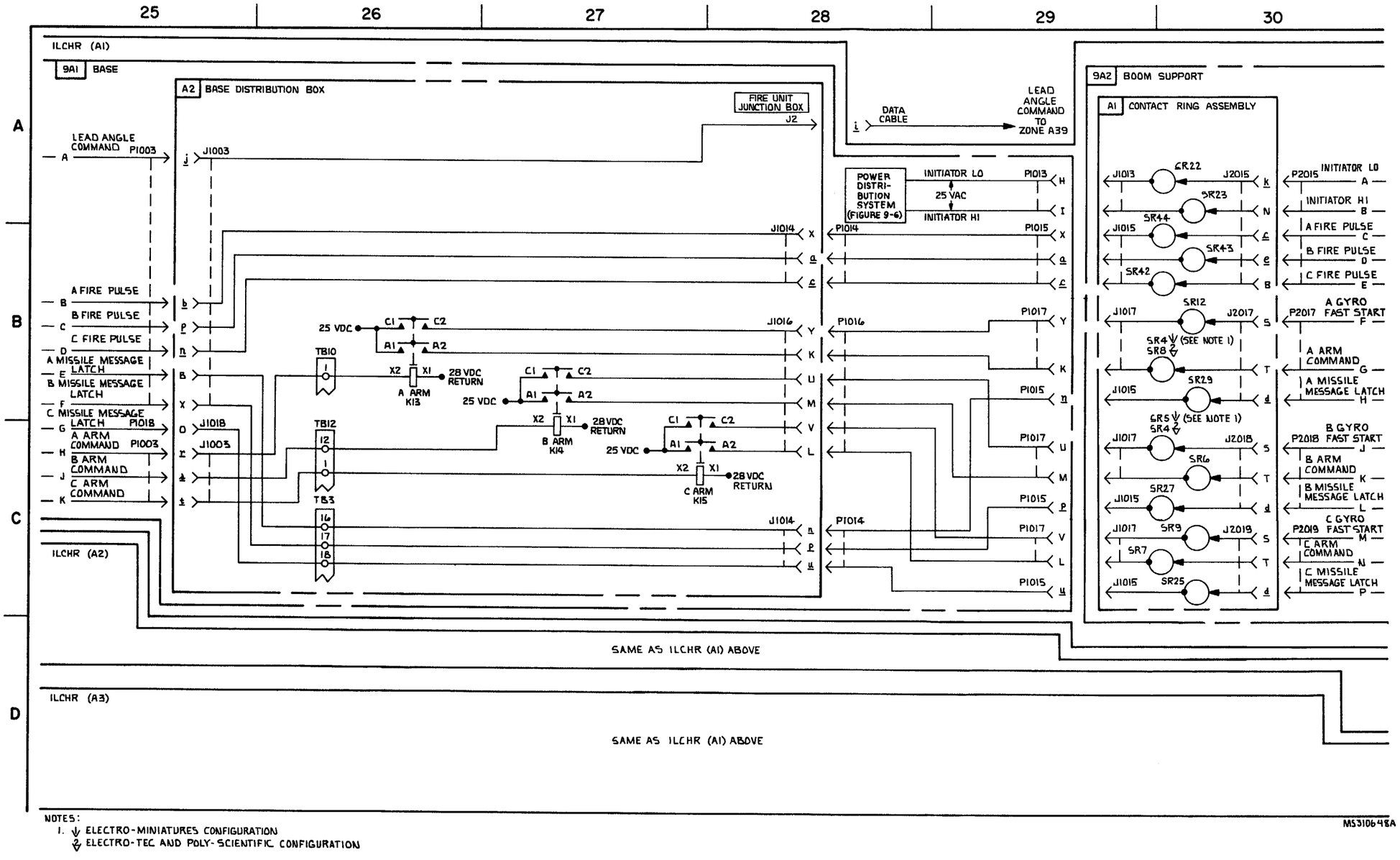

FIGURE 3-29. FIRE COMMAND -- SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 17).

3-159/3-160 blank

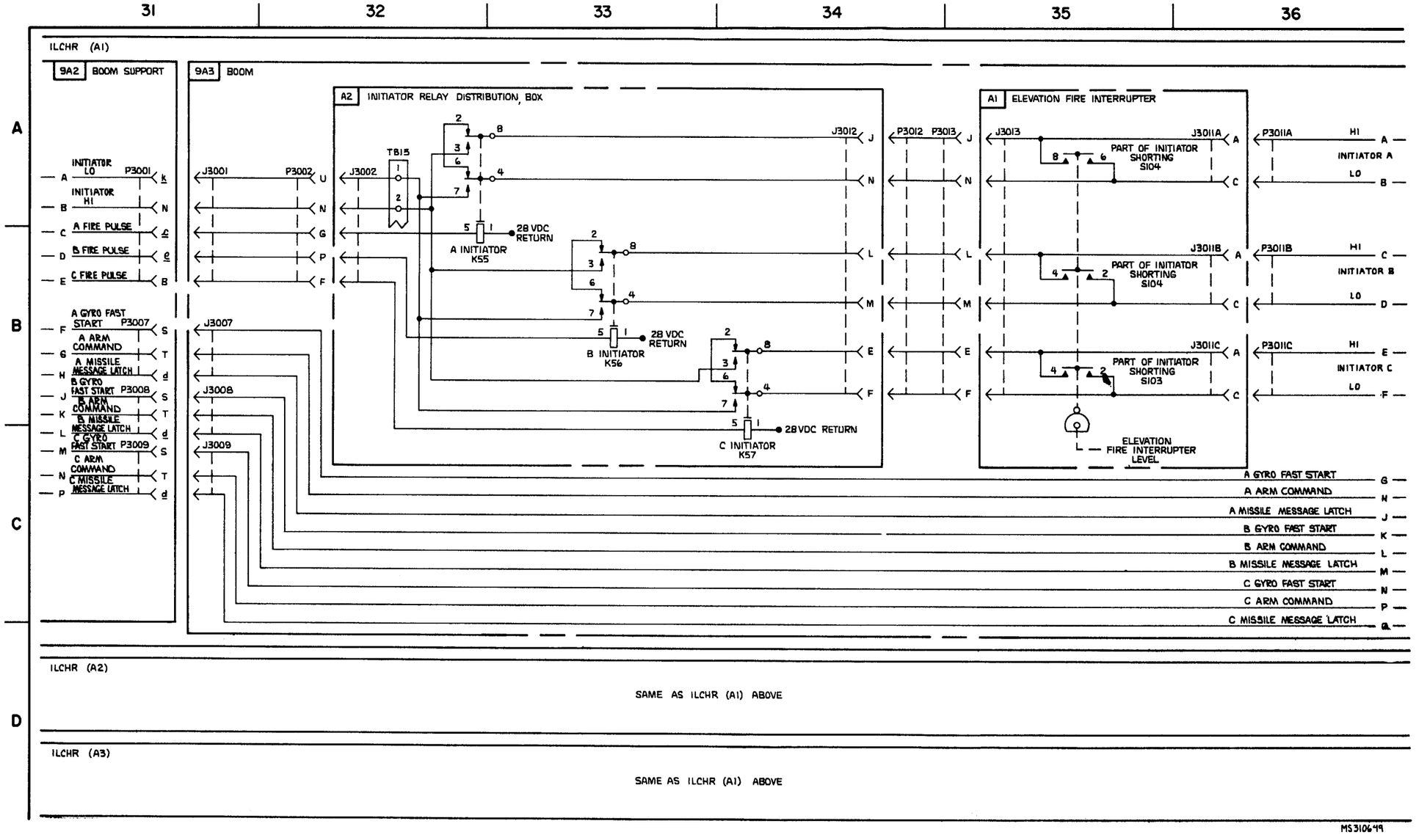

FIGURE 3-29. FIRE COMMAND-- SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 17).

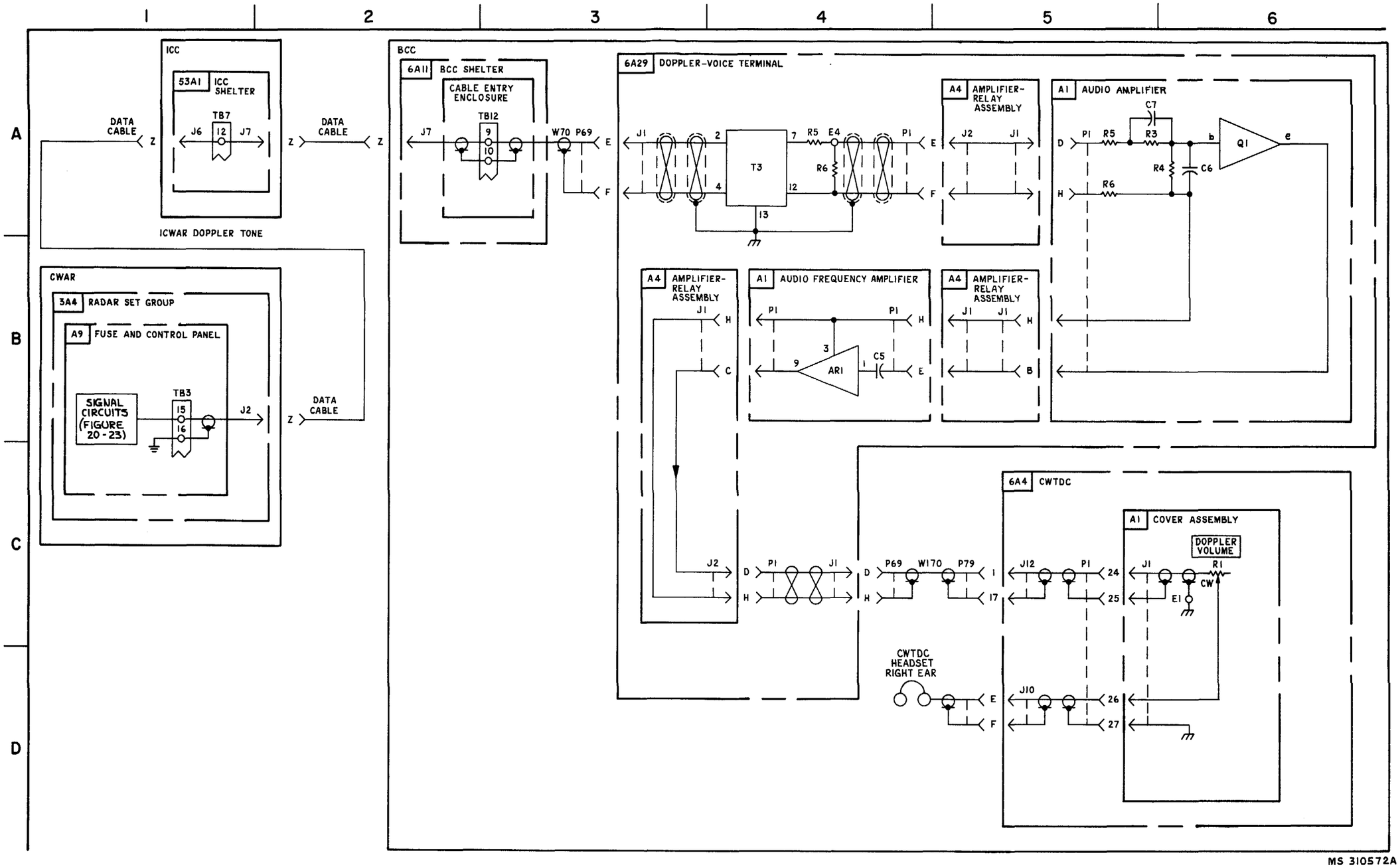

FIGURE 3-29. FIRE COMMAND- SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 17).

3-163/3-164 blank

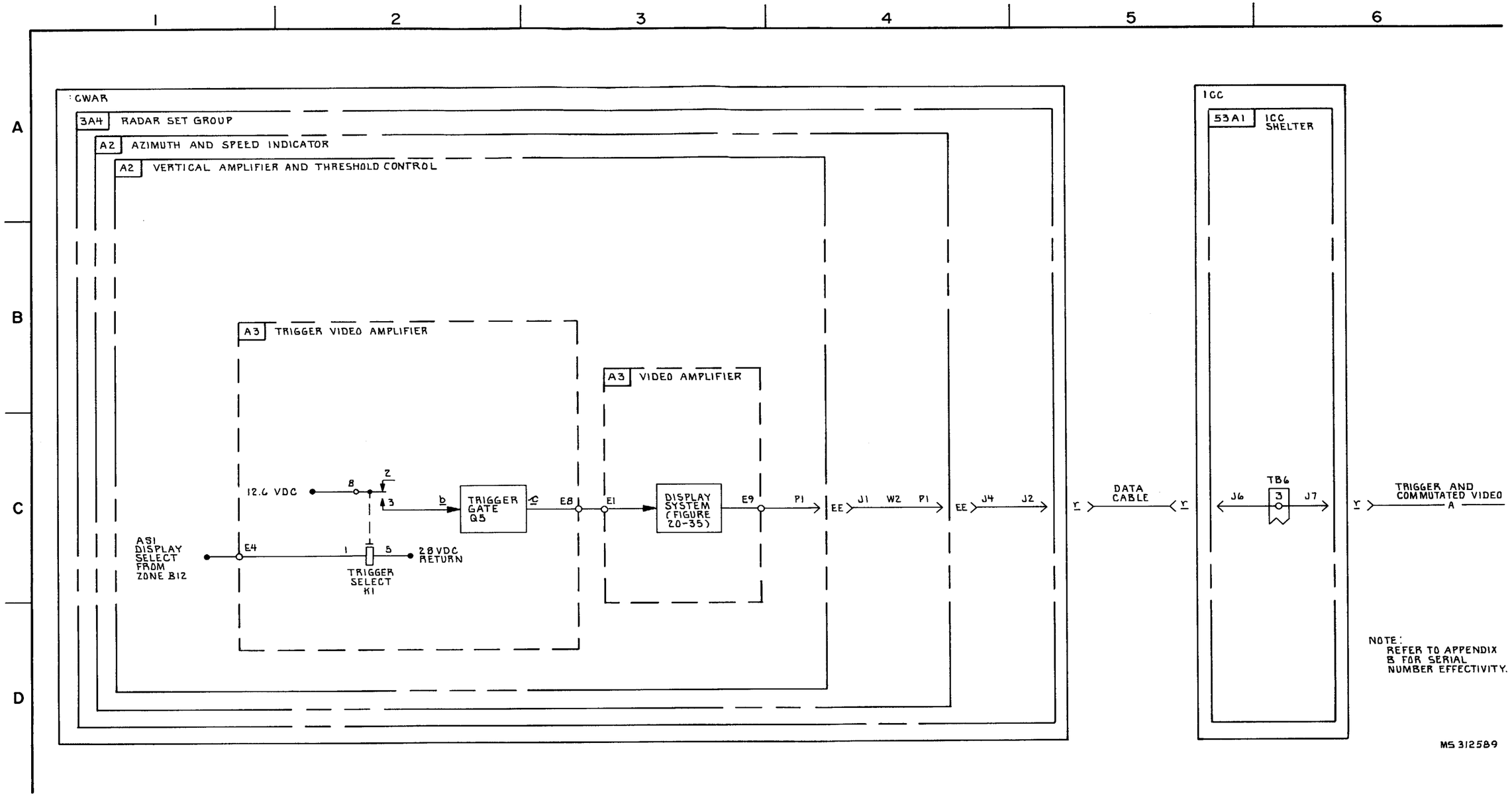

FIGURE 3-29. FIRE COMMAND-SYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 17)

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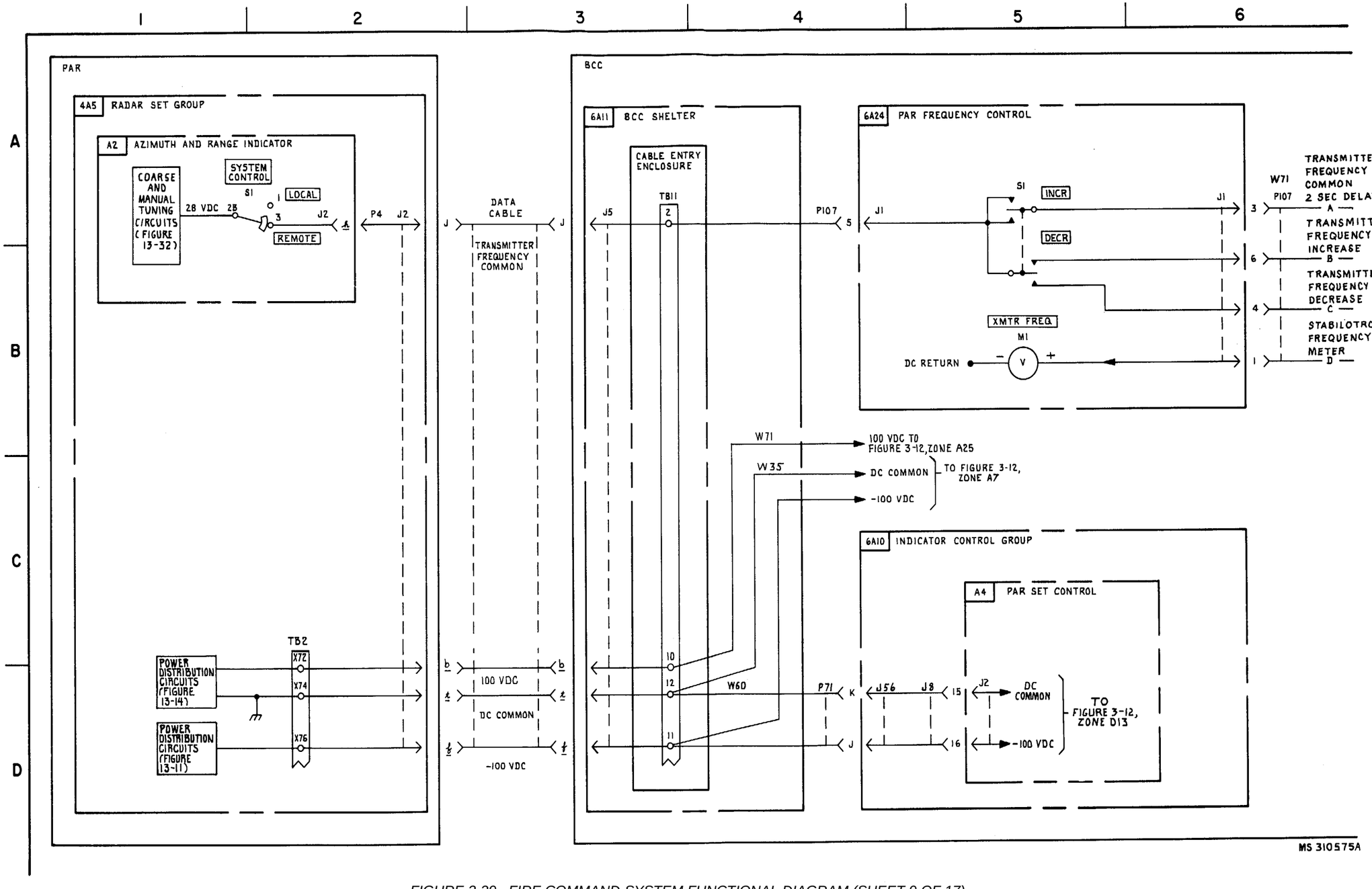

FIGURE 3-29. FIRE COMMAND-SYSTEM FUNCTIONAL DIAGRAM (SHEET 9 OF 17).

3-167/3-168 blank

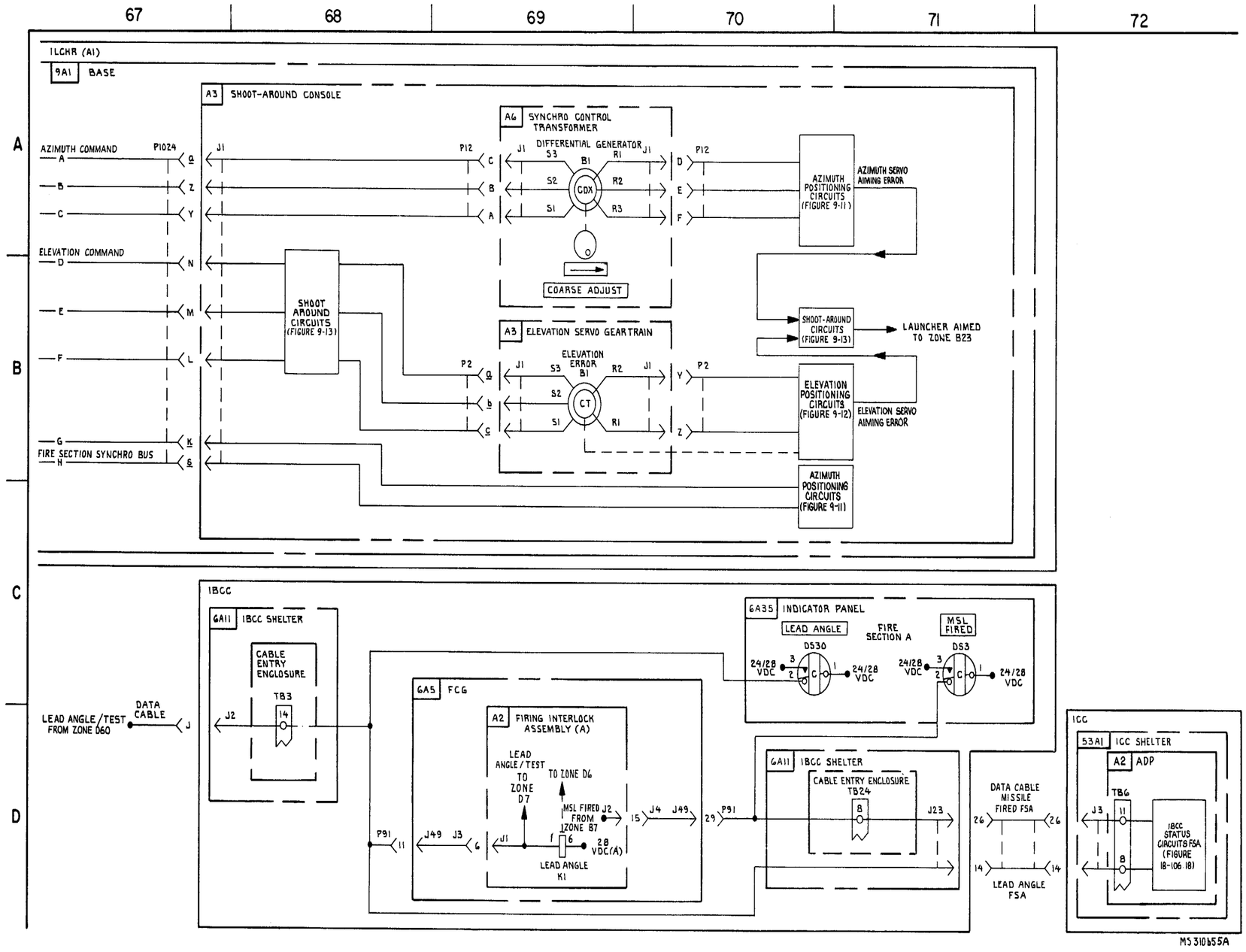

*FIGURE 3-29. FIRE COMMAND * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM SHEET 10 OF I7).*

3-169/3-170 blank

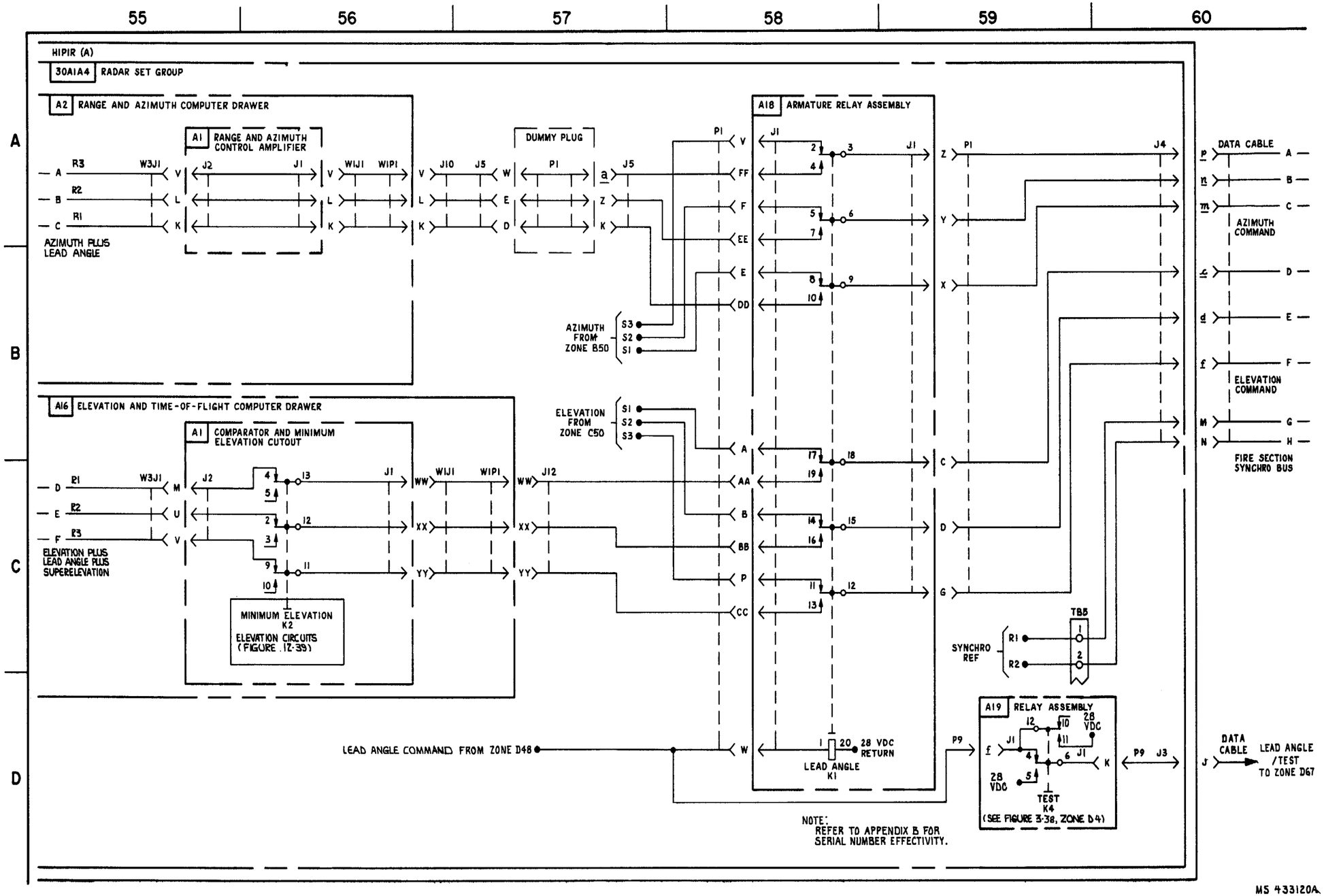

FIGURE 3-29. FIRE COMMAND- SYSTEM FUNCTIONAL DIAGRAM (SHEET 11 OF 17).

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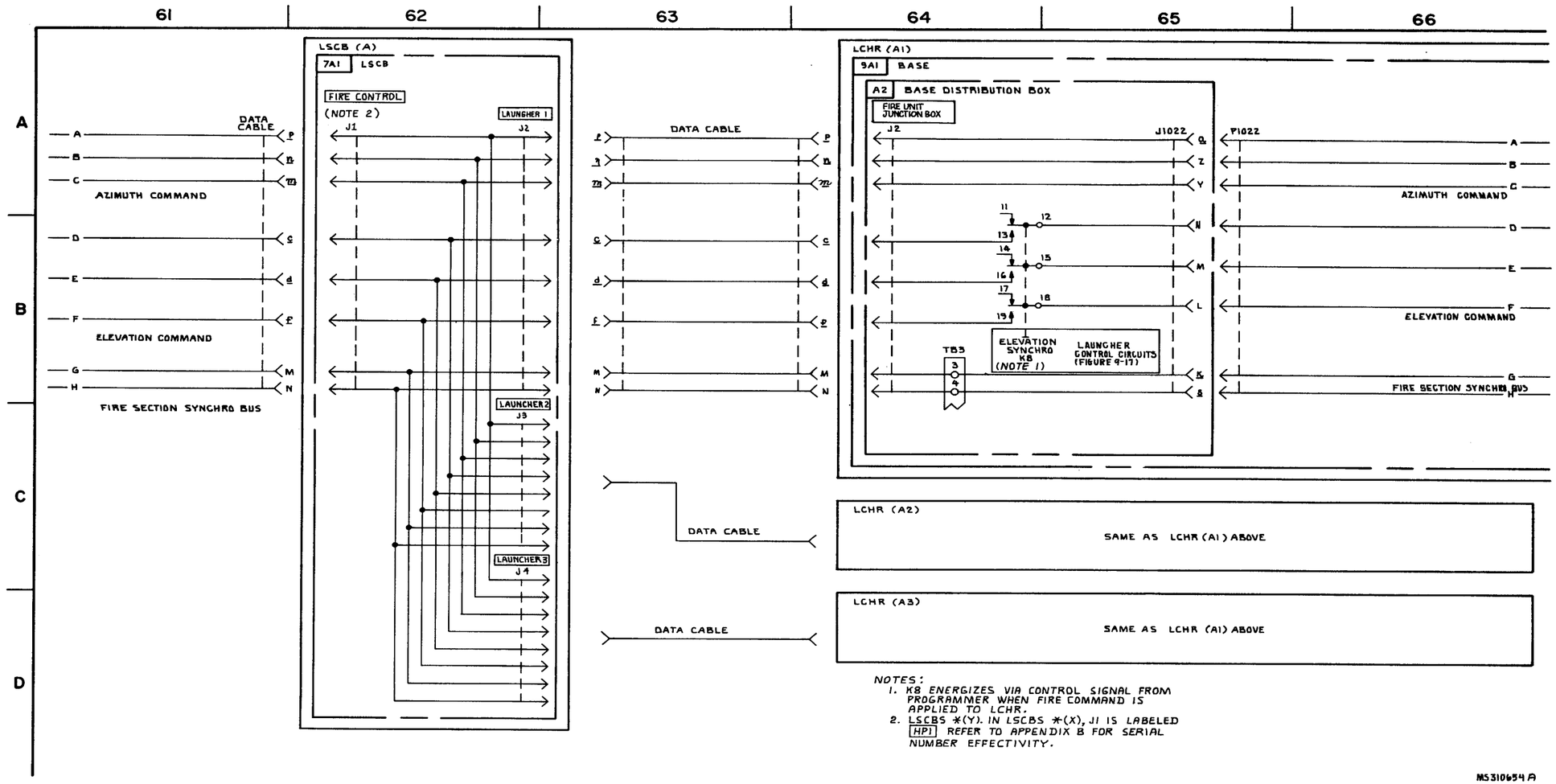

FIGURE 3-29. FIRE COMMAND - SYSTEM FUNCTIONAL DIAGRAM (SHEET 12 OF 17)

3-173/3-174 blank

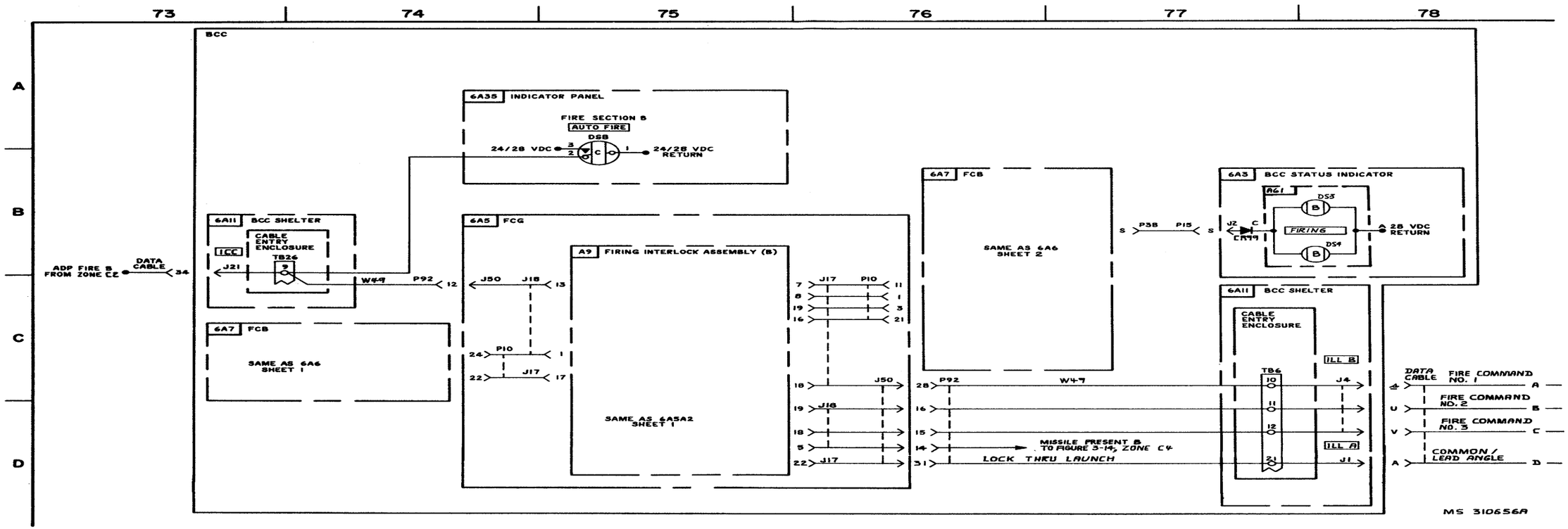

FIGURE 3-29. FIRE COMMAND - SYSTEM FUNCTIONAL DIAGRAM (SHEET 13 OF 17).

3-175 /3-176 blank

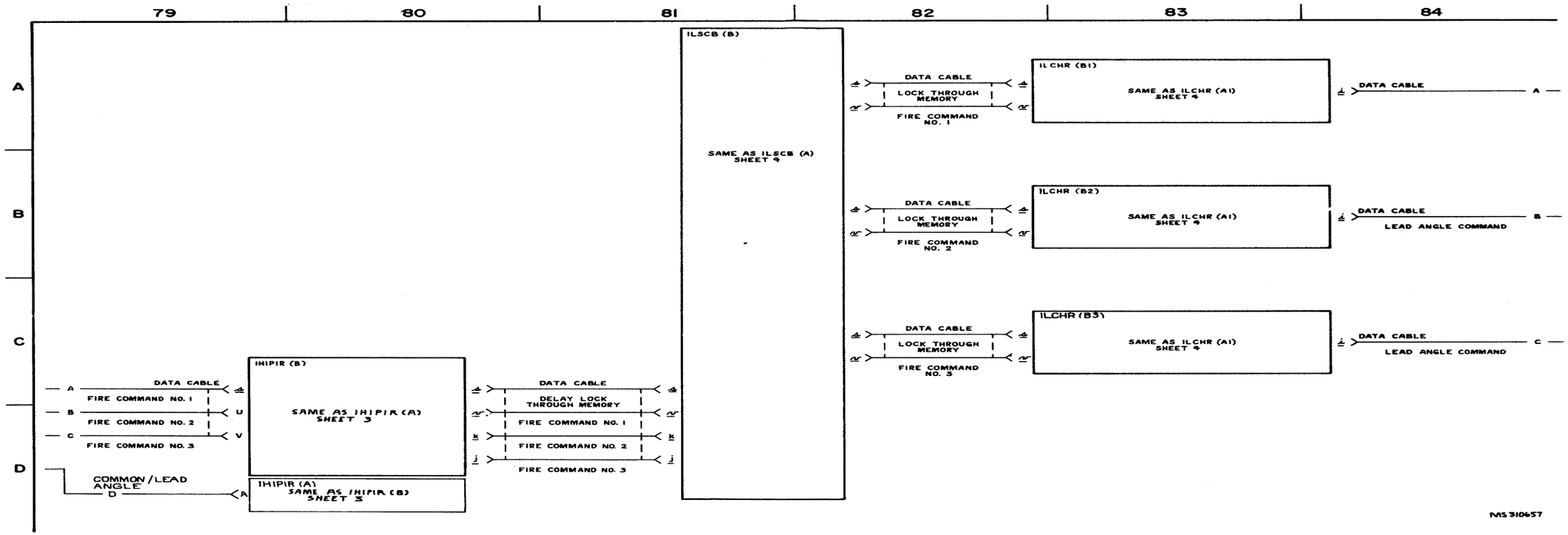

FIGURE 3-29. FIRE COMMPAND - SYSTEM FUNCTIONAL DIAGRAM (SHEET 14 OF 17).

3-177/3-178 blank

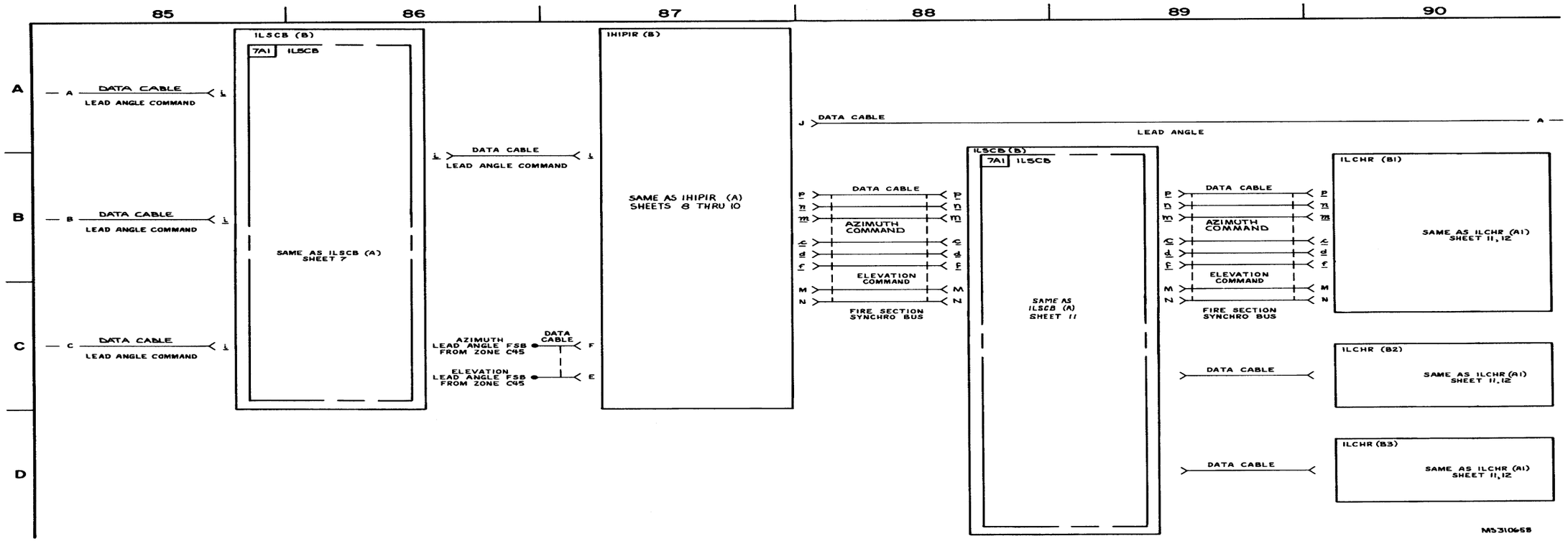

FIGURE 3-29. FIRE COMMAND - SYSTEM FUNCTIONAL DIAGRAM (SHEET 15 OF 17).

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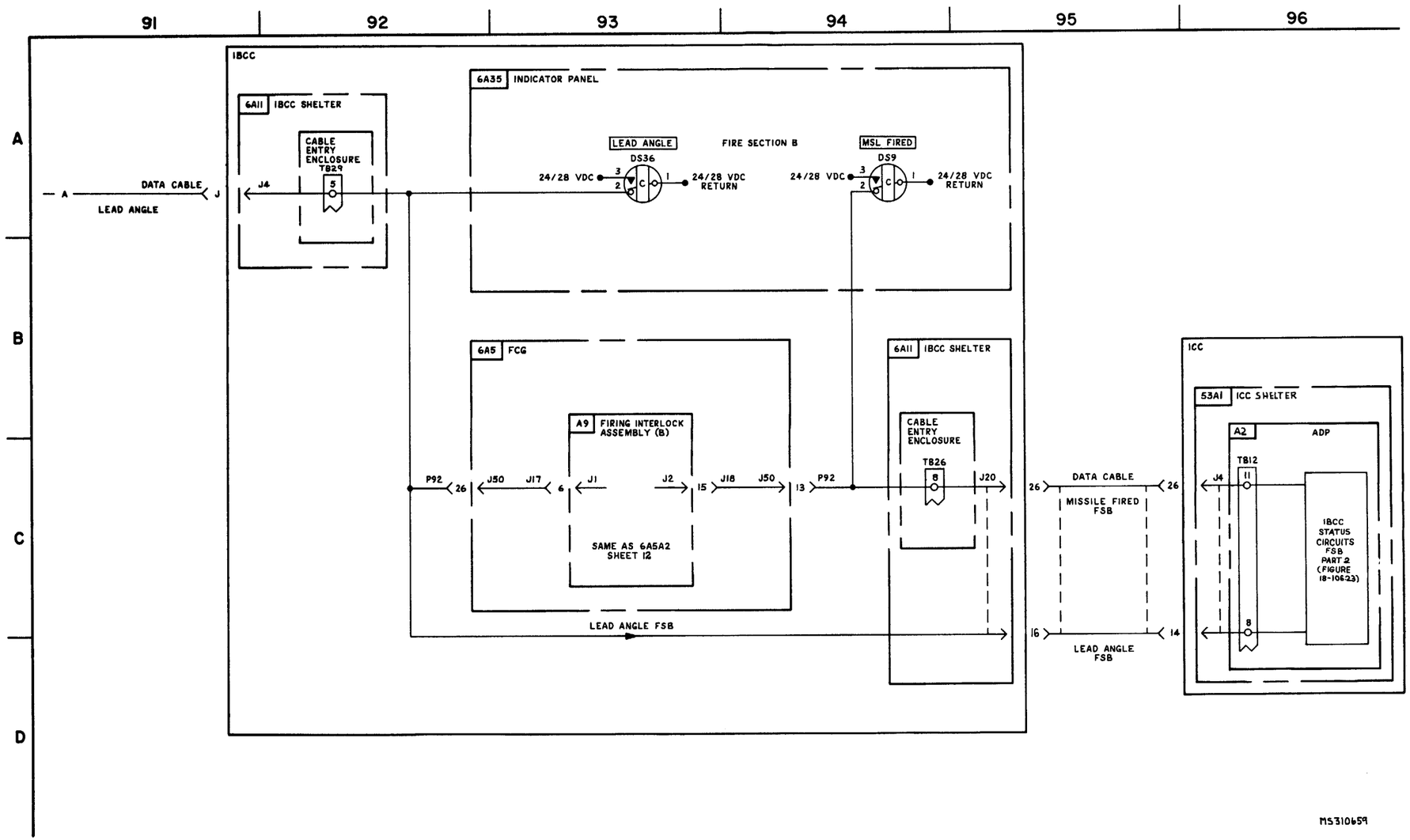

FIGURE 3-29. FIRE COMMAND-SYSTEM FUNCTIONAL DIAGRAM (SHEET 16 OF 17).

3-181/3-182 blank

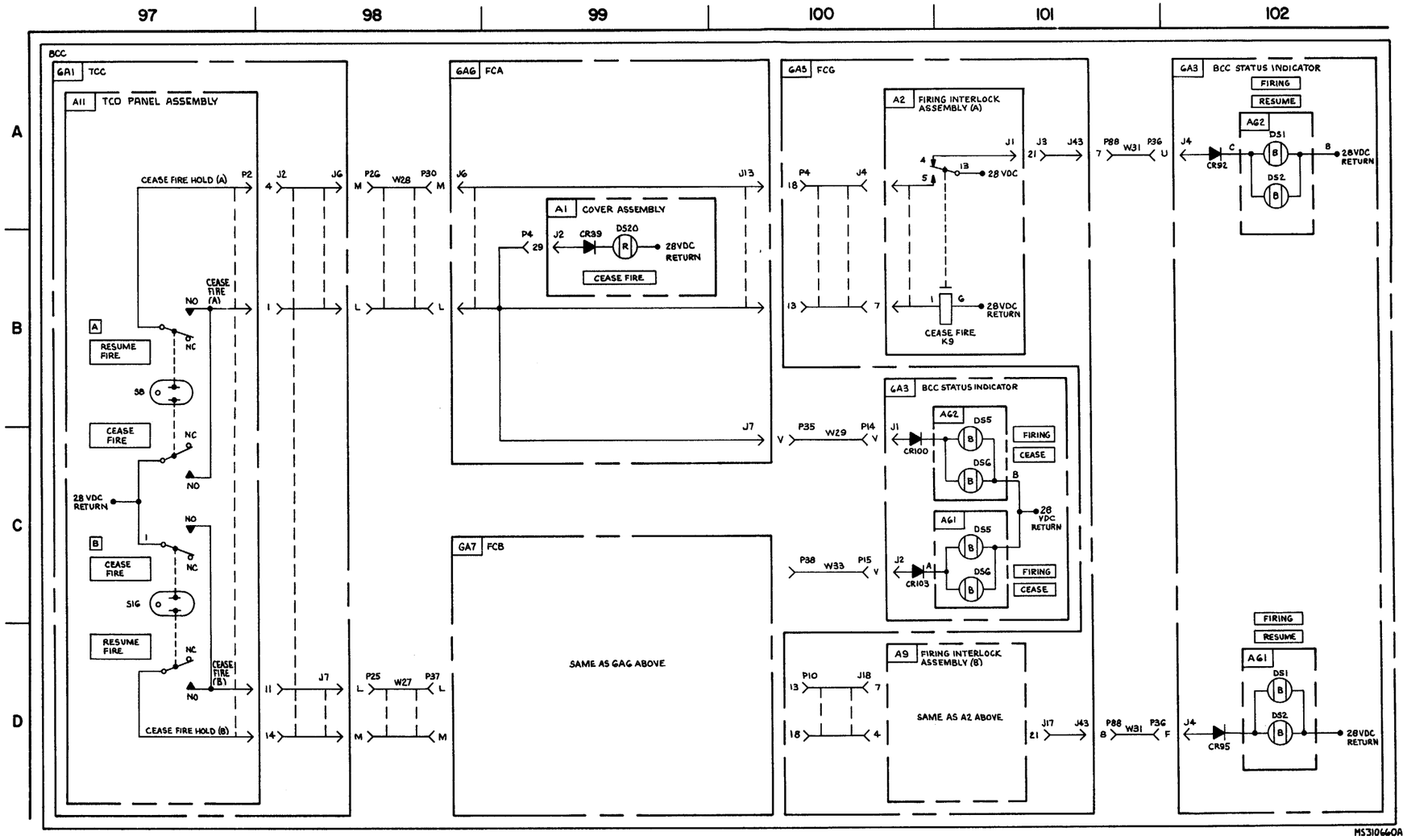

FIGURE 3-29. FIRE COMMAND-SYSTEM FUNCTIONAL DIAGRAM (SHEET 17 OF 17)

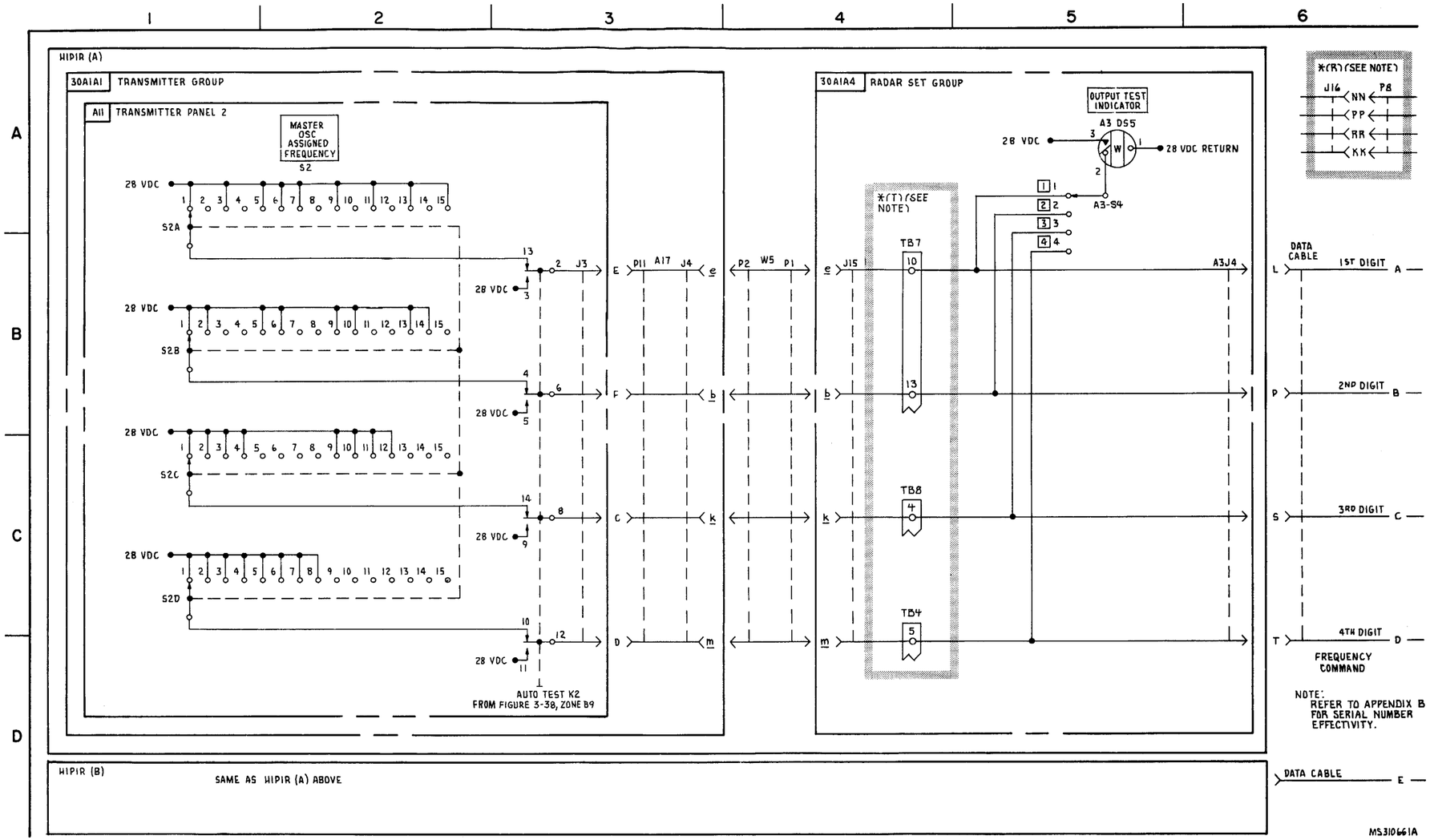

FIGURE 3-30. FREQUENCY COMMAND - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 3)

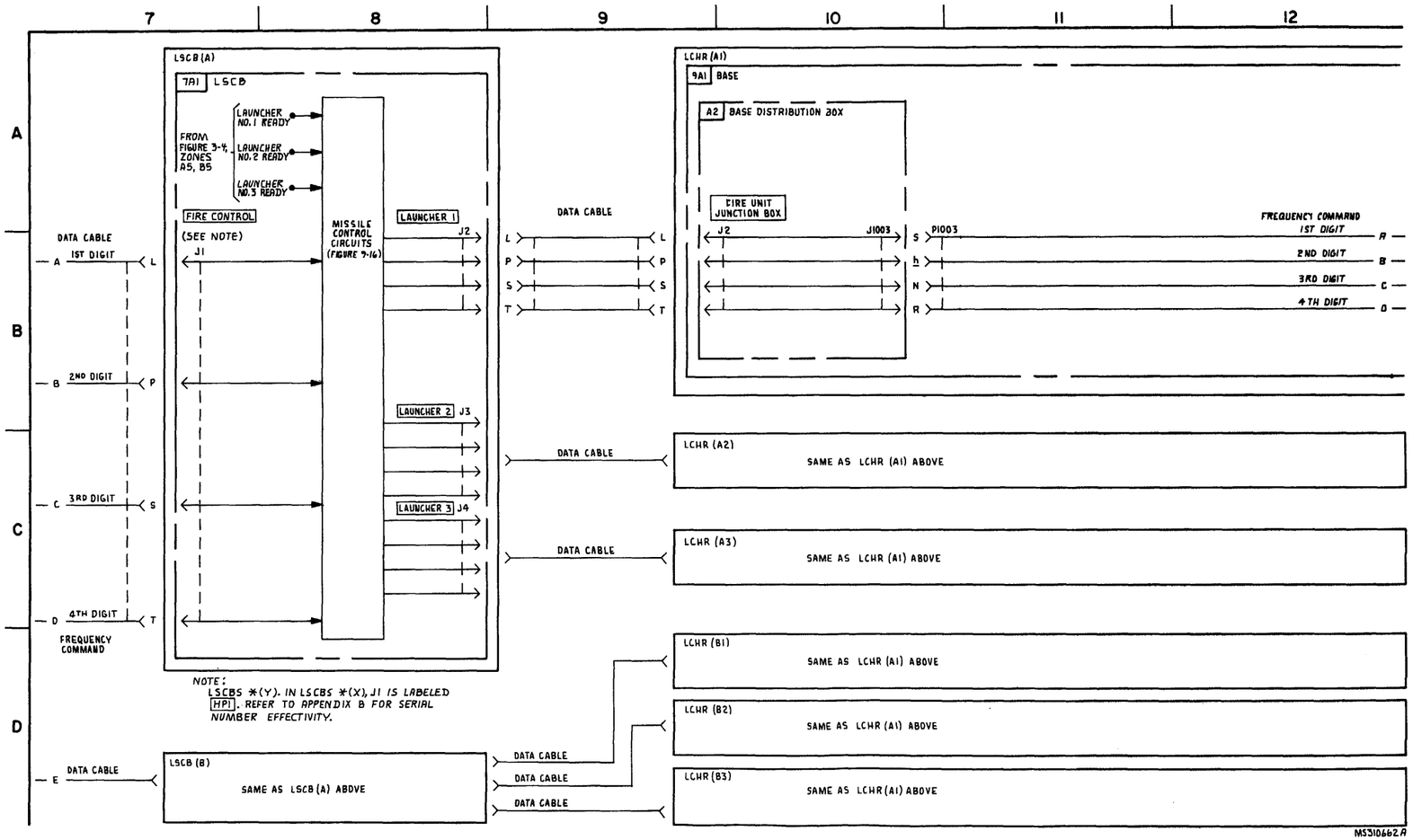

FIGURE 3-30. FREQUENCY COMMAND -SYSTEM FUNCTIDNAL DIAGRAM (SHEET 2 OF 3)

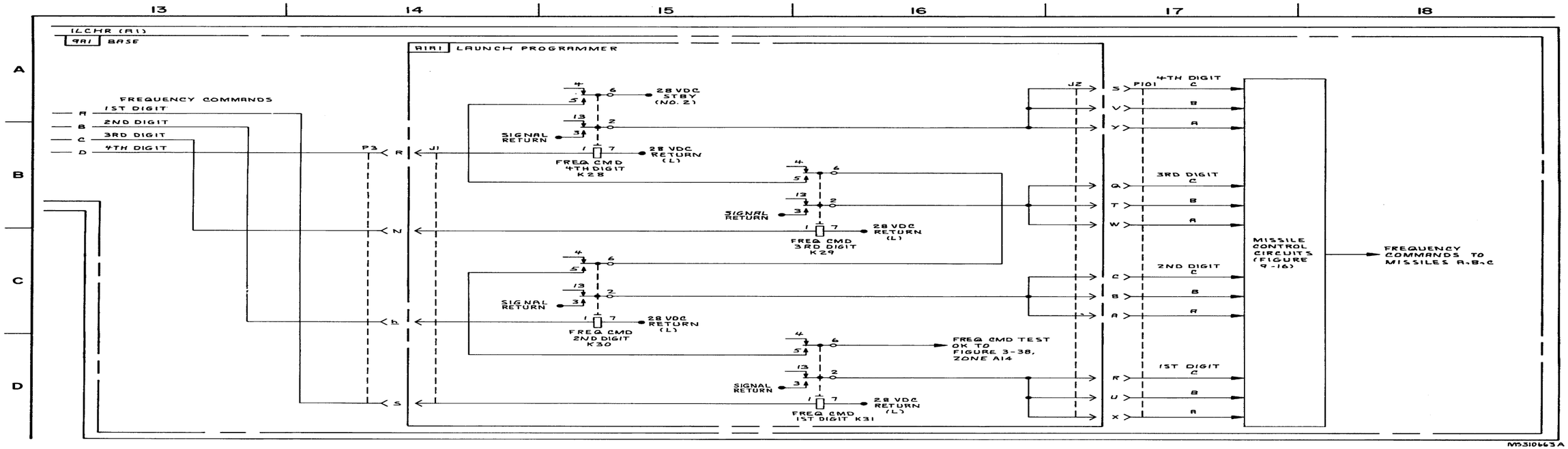

FIGURE 3-30. FREQUENCY COMMAND - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 3).

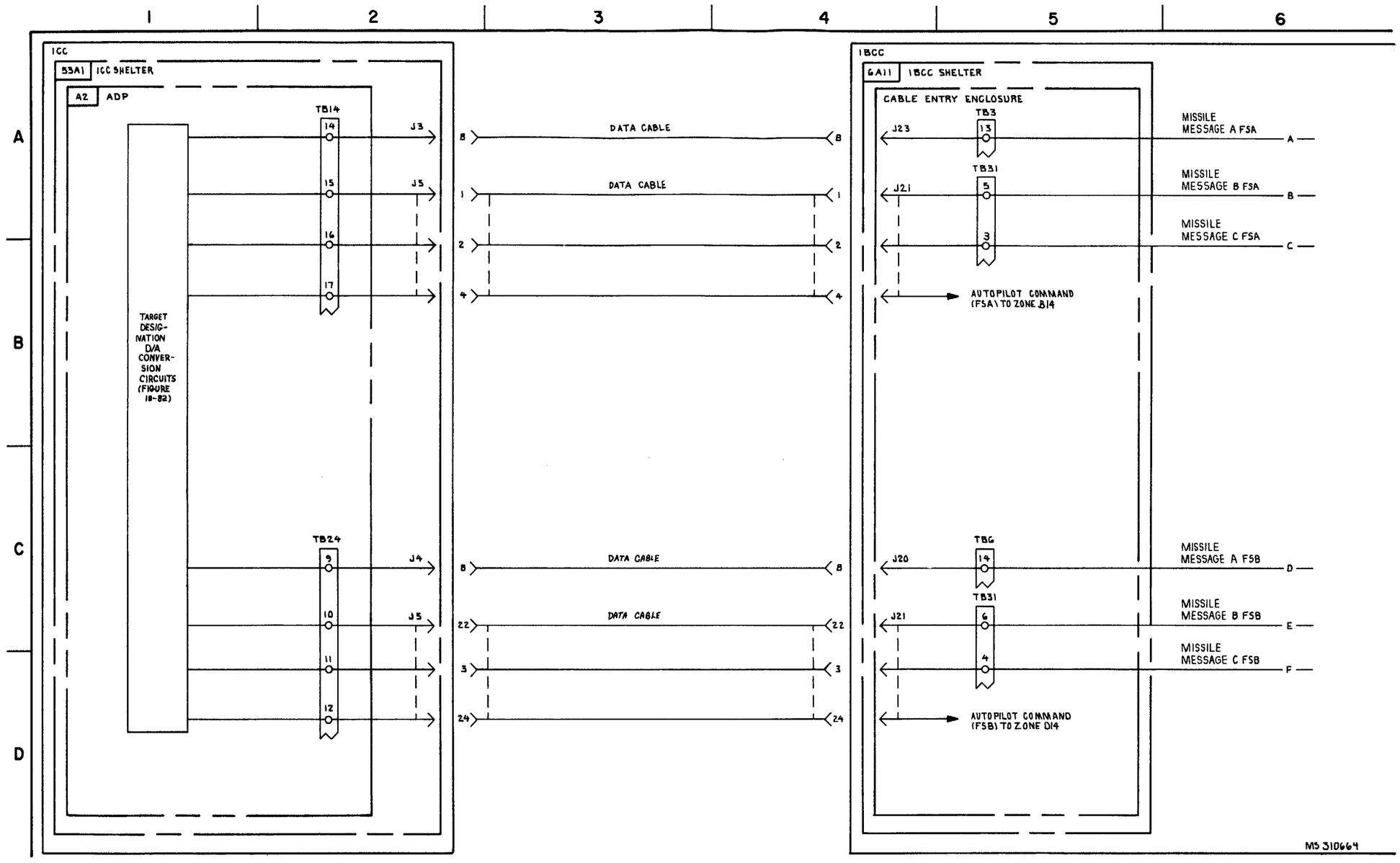

FIGURE 3-31. MISSILE MESSASE AND AUTO PILOT COMMANDS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 5).

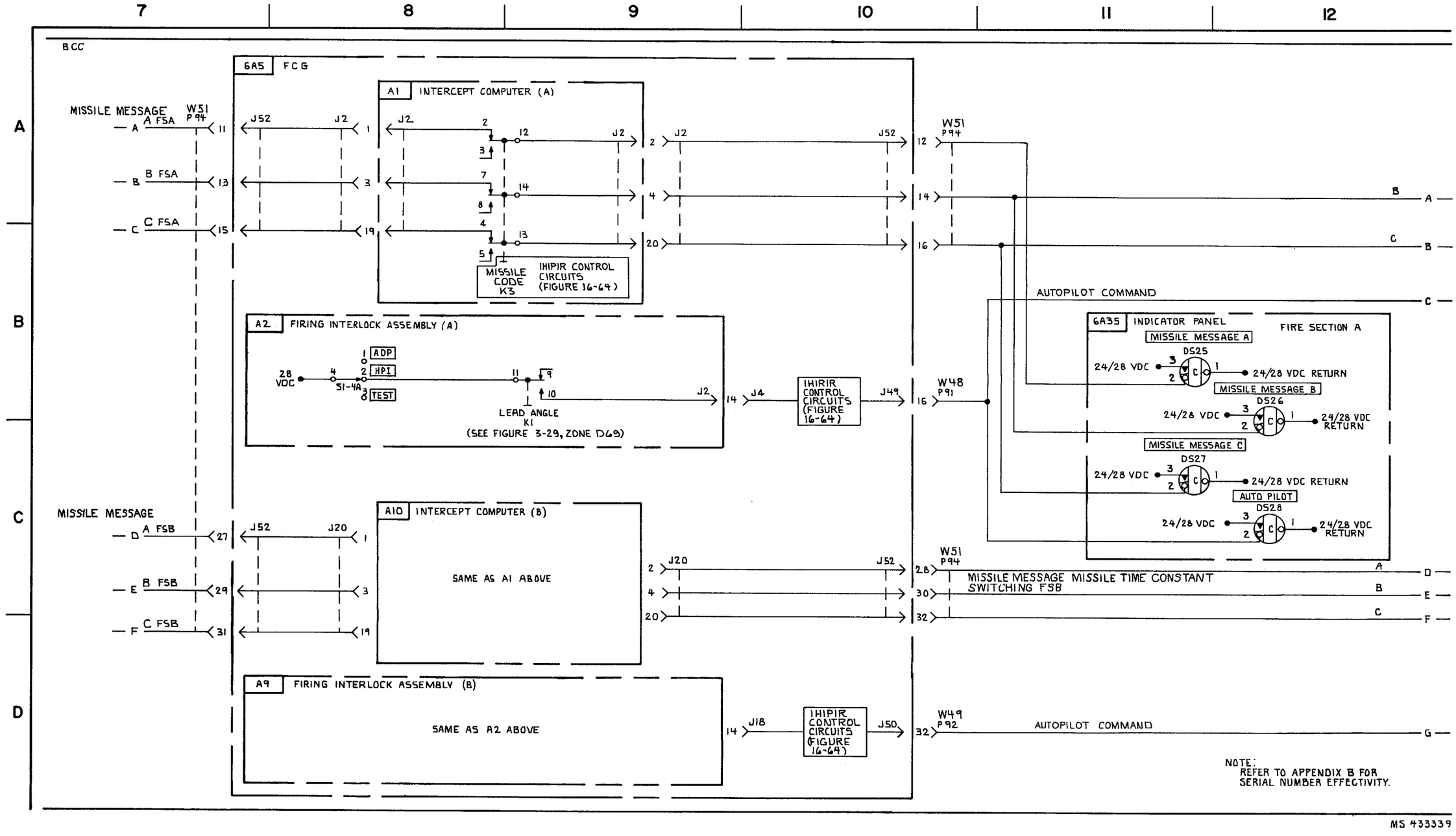

*FIGURE 3-31. MISSILE MESSAGE AND AUTOPILOT COMMAND * (T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 5)*

3-189/3-190 blank

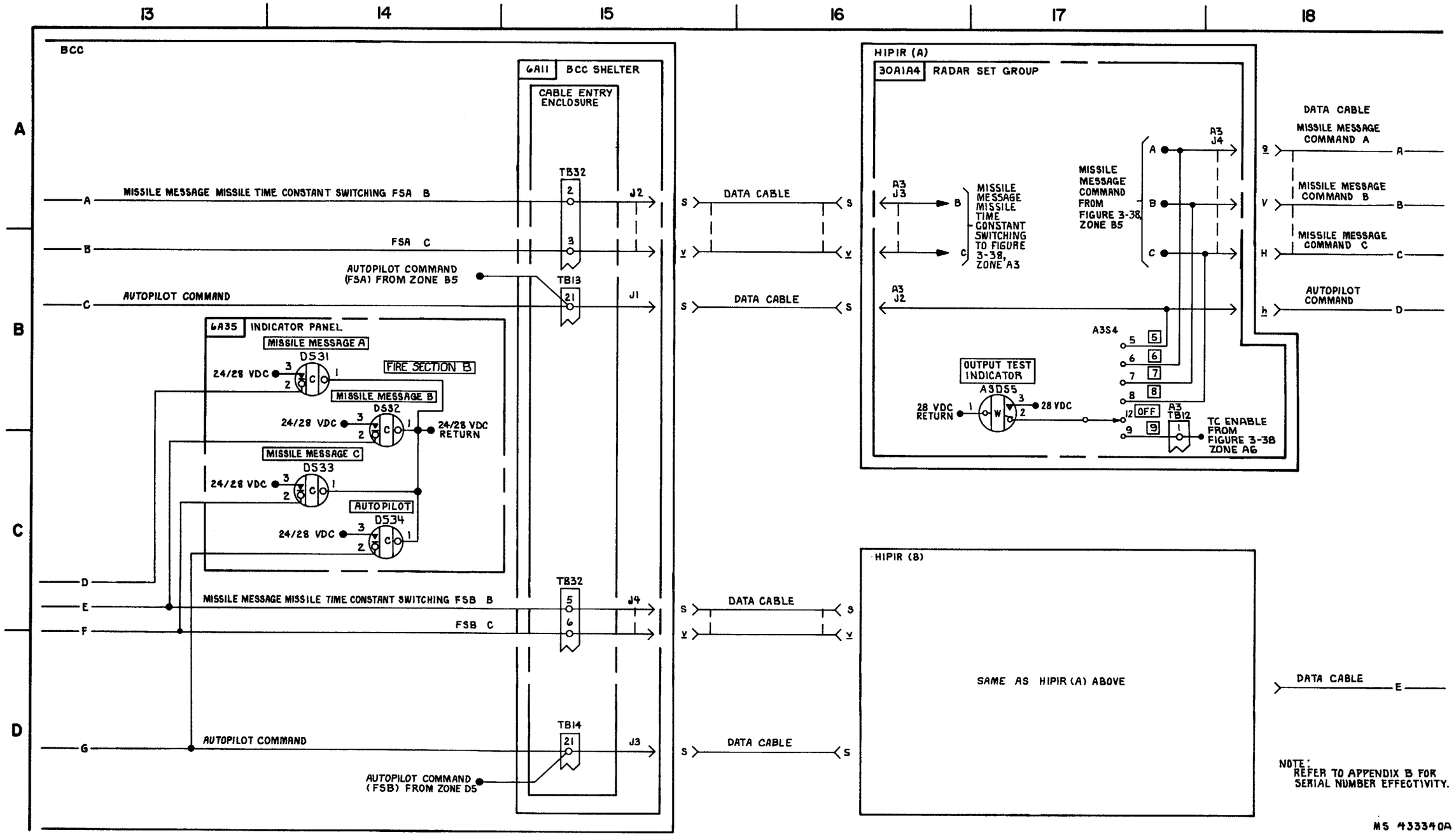

*FIGURE 3-31. MISSILE MESSAGE AND AUTOPILOT COMMANDS * (T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 5).*

3-191/3-192 blank

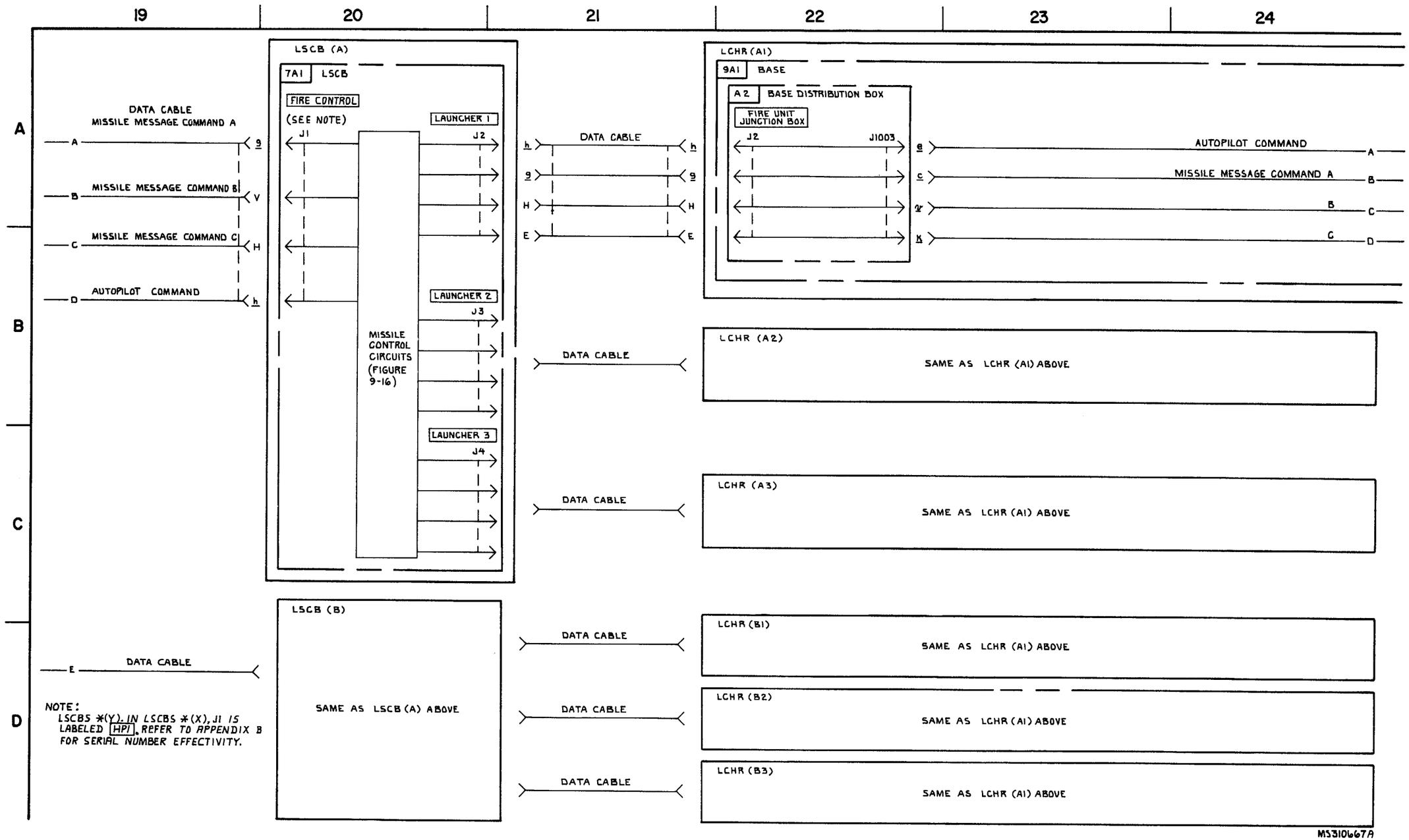

FIGURE 3-31 . MISSILE MESSAGE AND AUTO PILOT COMMANDS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 5).

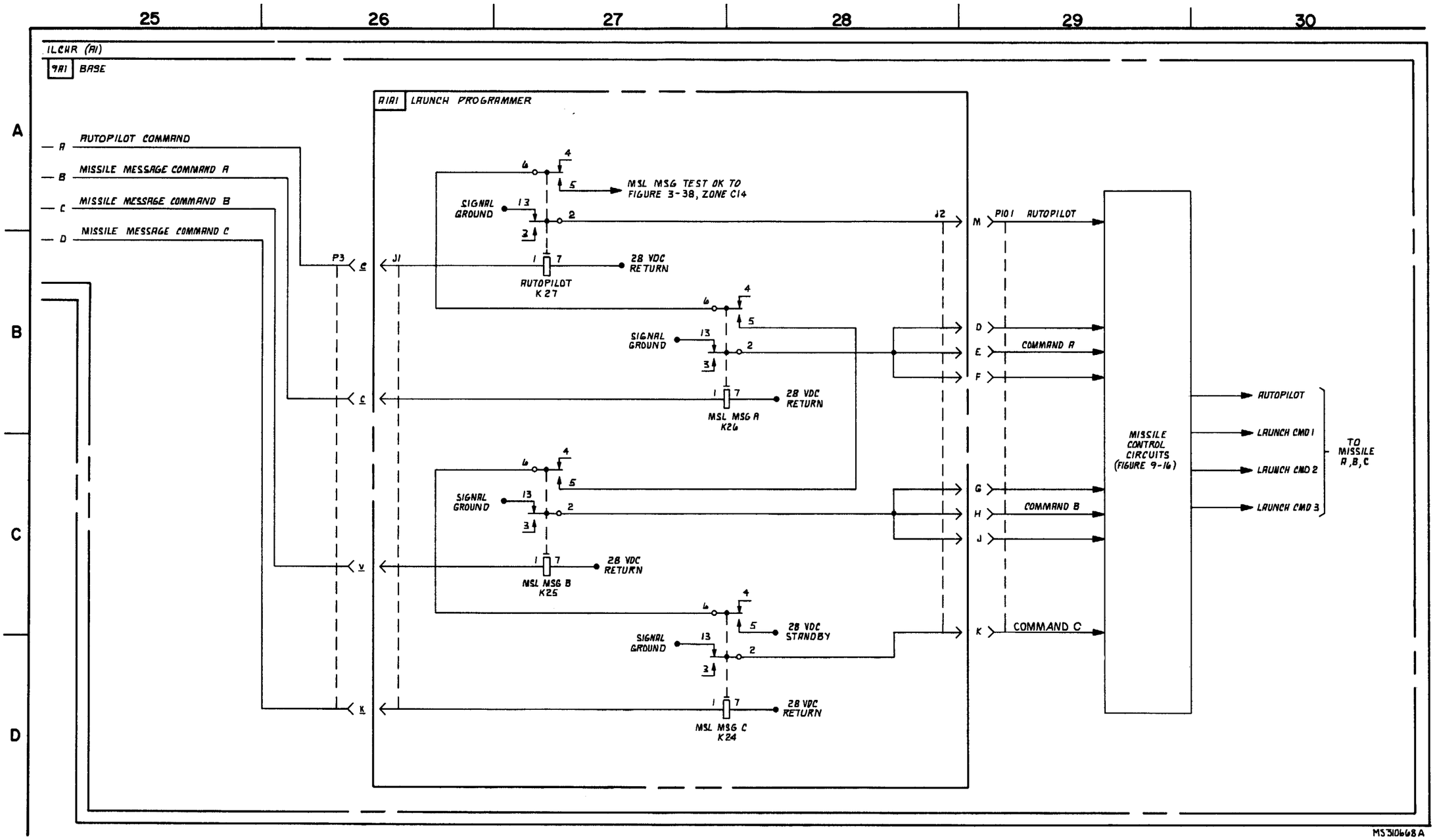

FIGURE 3-31. MISSILE MESSAGE AND AUTOPILOT COMMNDS-SYSTYM FUNCTIONAL DIAGRAM (SHEET 5 OF 5).

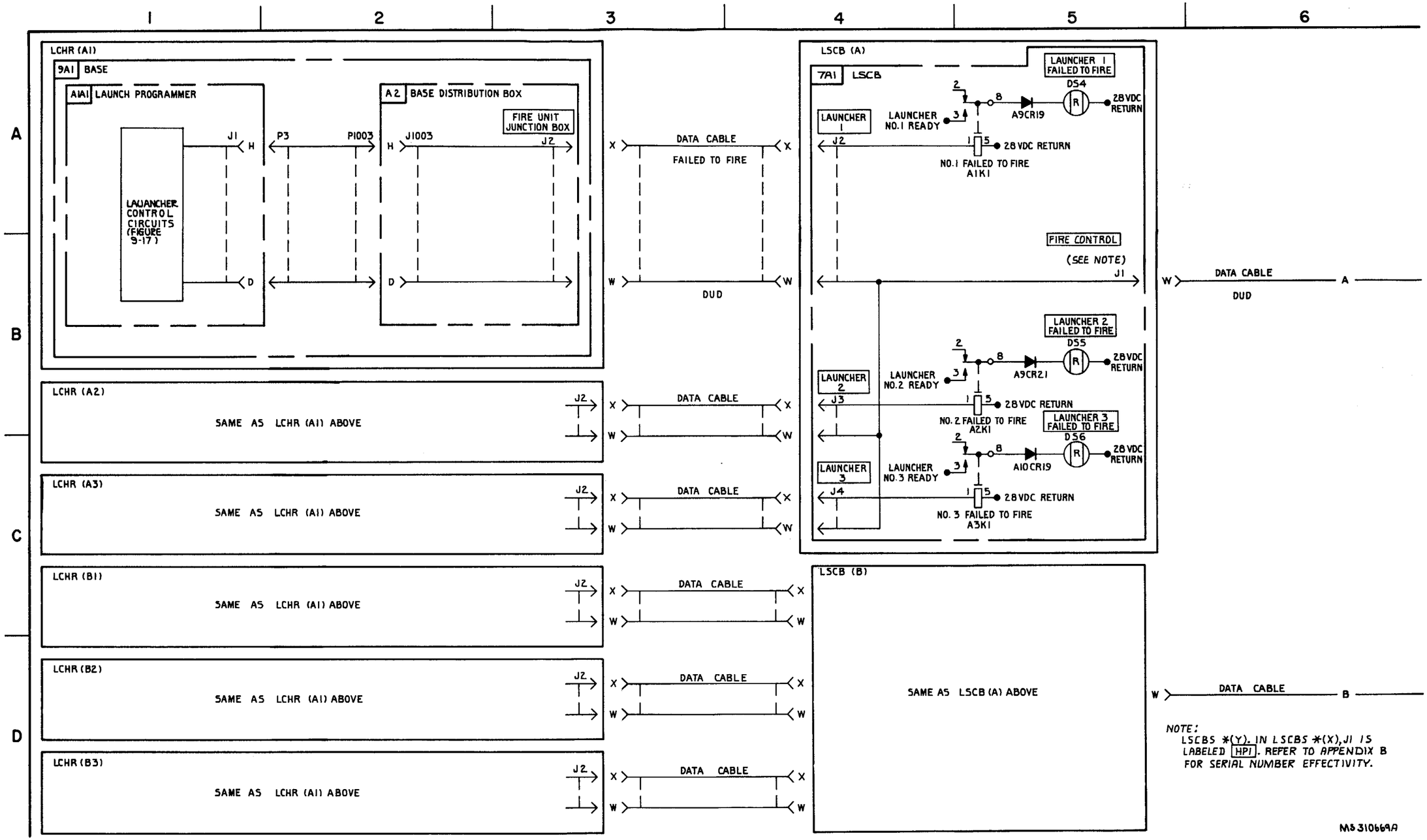

FIGURE 3-32. DUD AND FAILED TO FIRE-SYSTEM FUNCTIONAL DIAGRAM (SEET 1 OF 2).

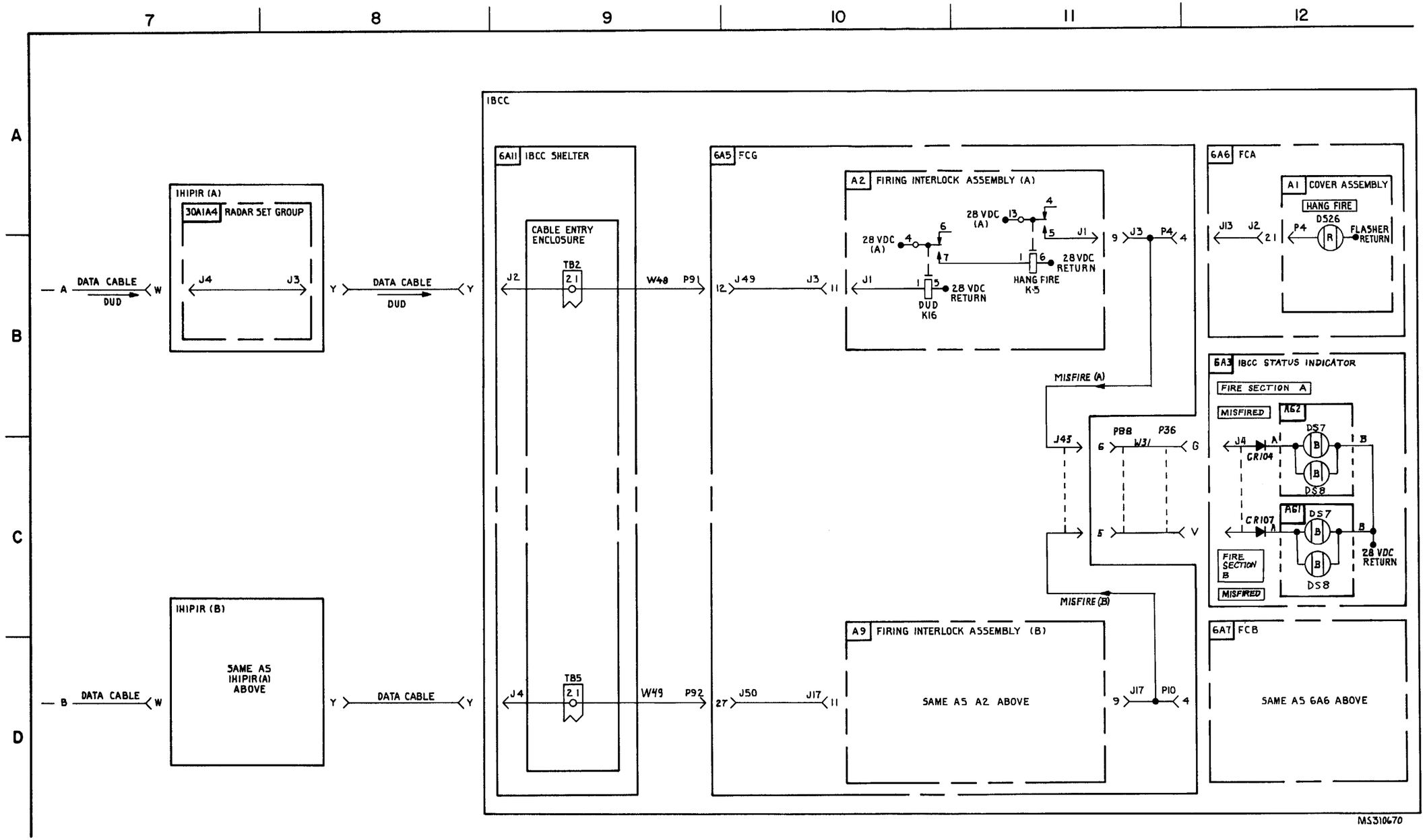

FIGURE 3-32. DUD AND FAILED TO FIRE-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).

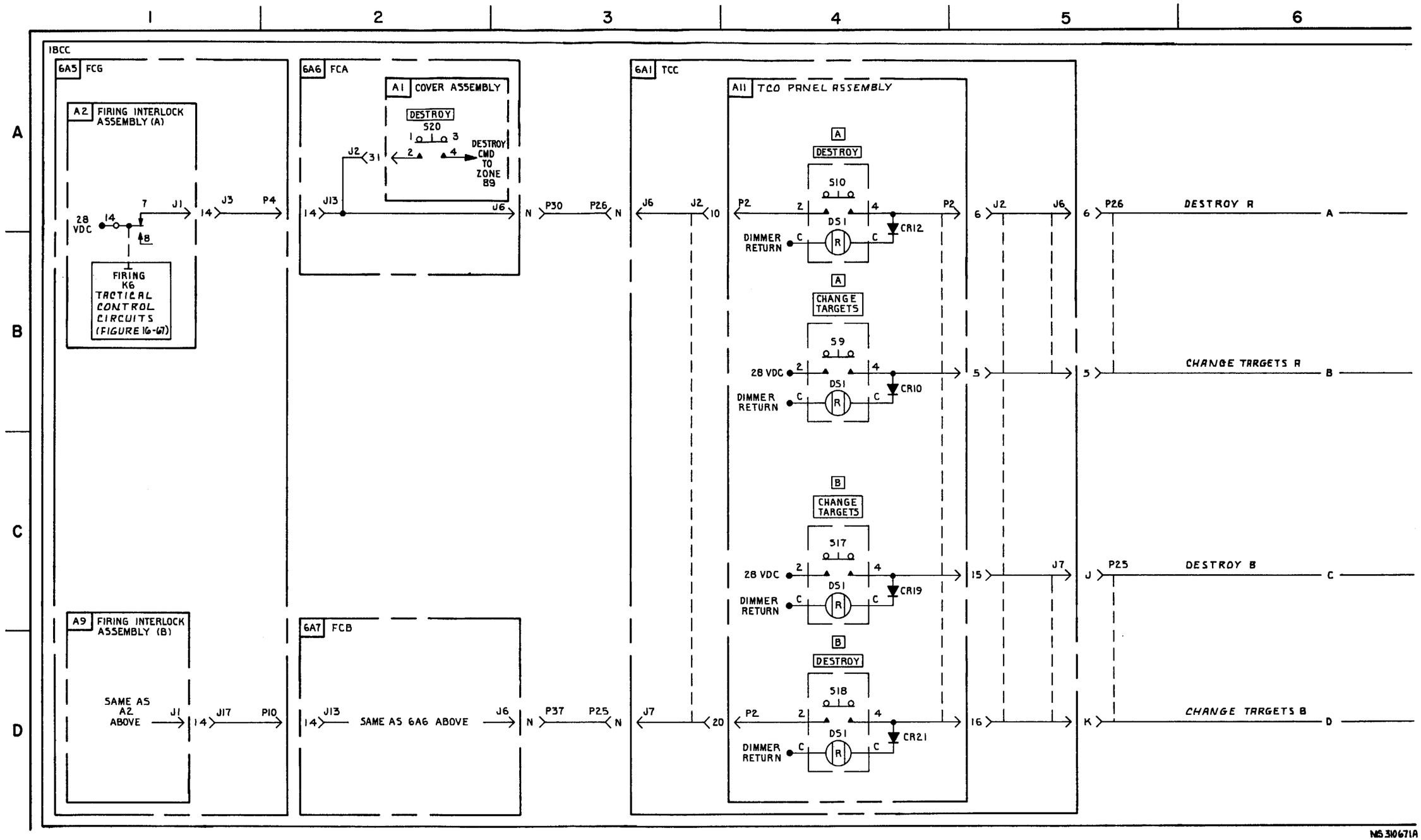

FIGURE 3-32. MISSILE DESTROY-SYSTEM FUNCTIONAL DIAGRAM (5EET 1 OF 5).

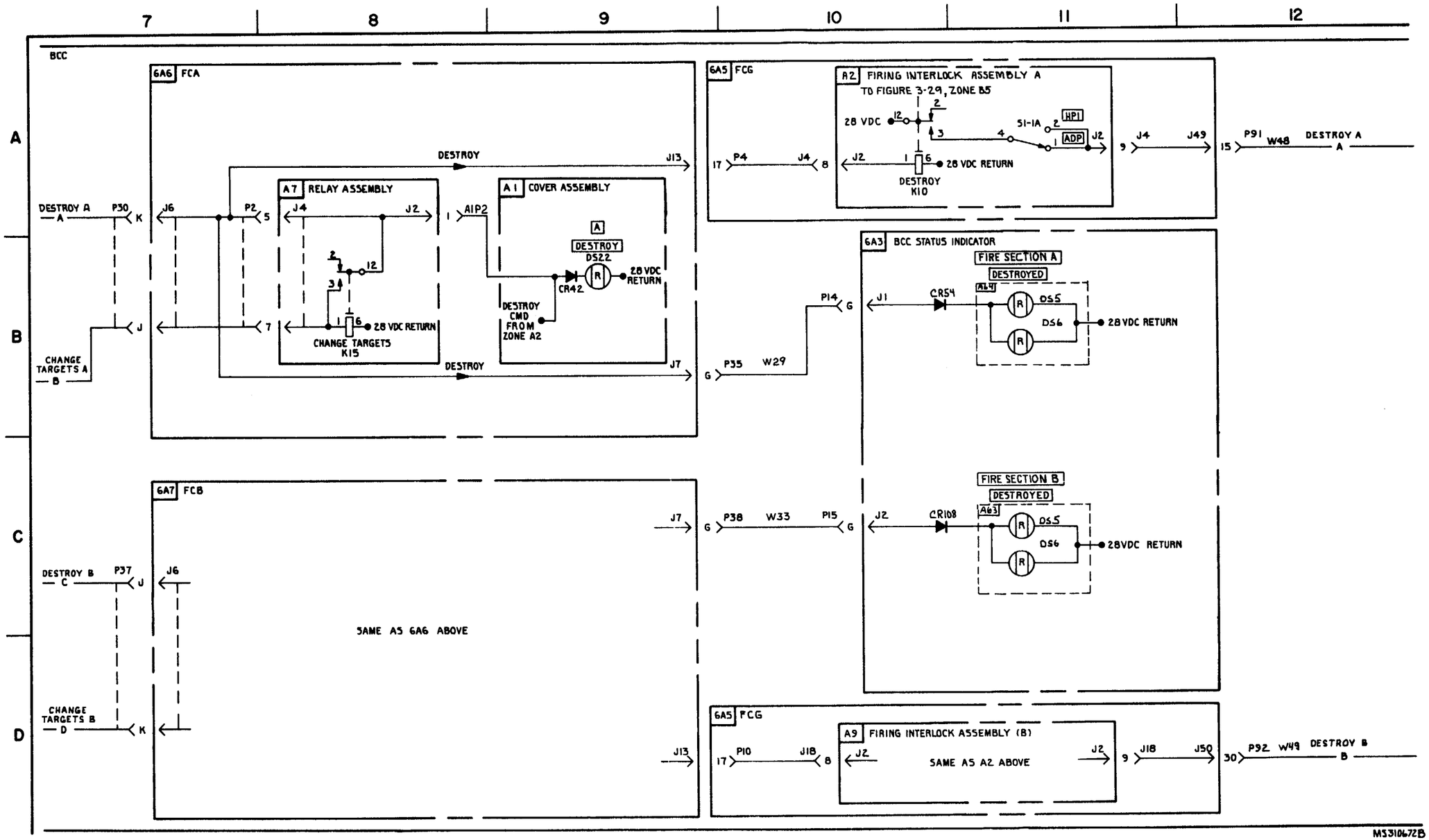

FIGURE 3 33. MSSILE DESTROY-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 5).

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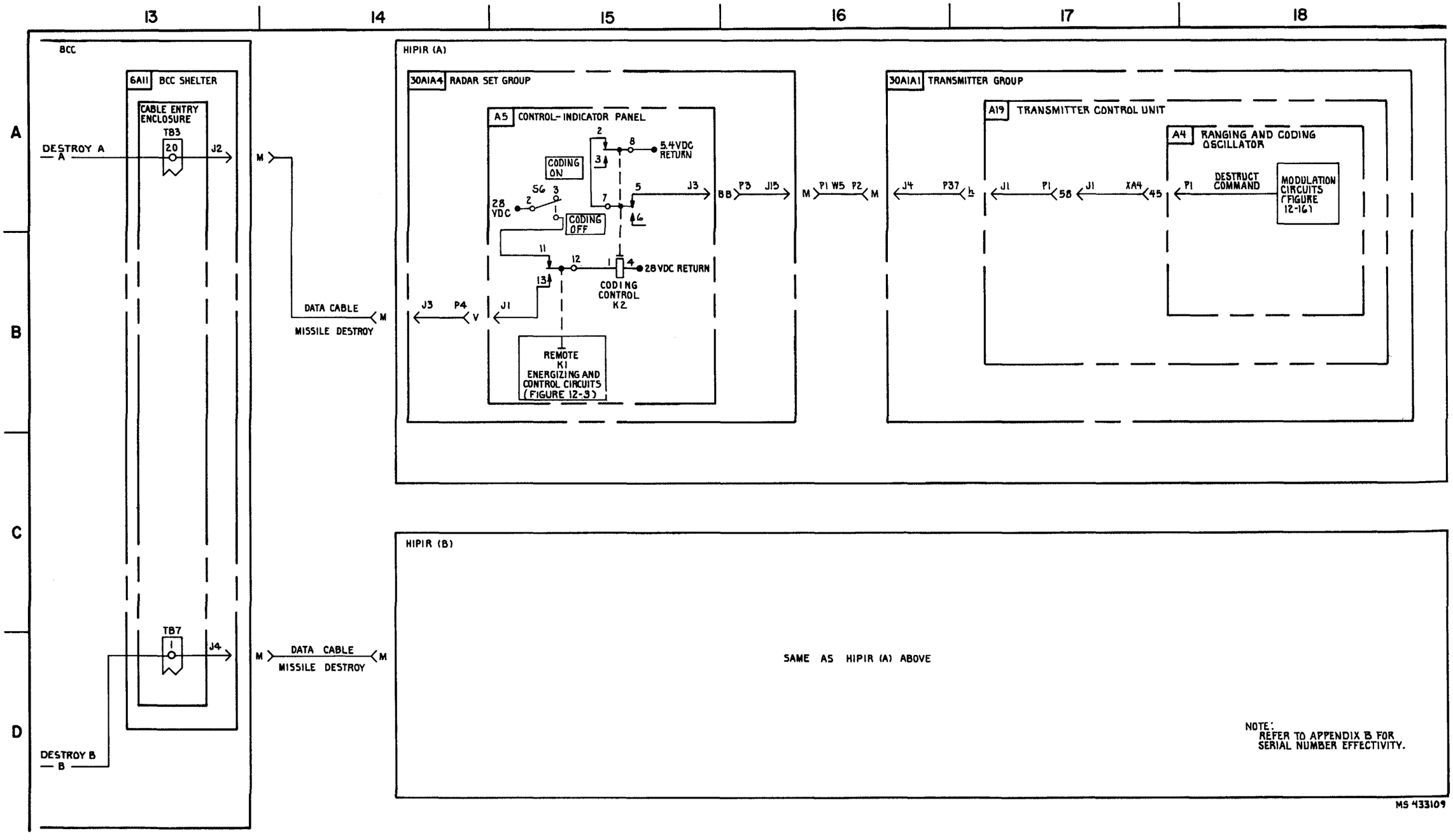

*FIGURE 3-33. MISSLE DESTROY * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3, 4, AND 5 OF 5).*

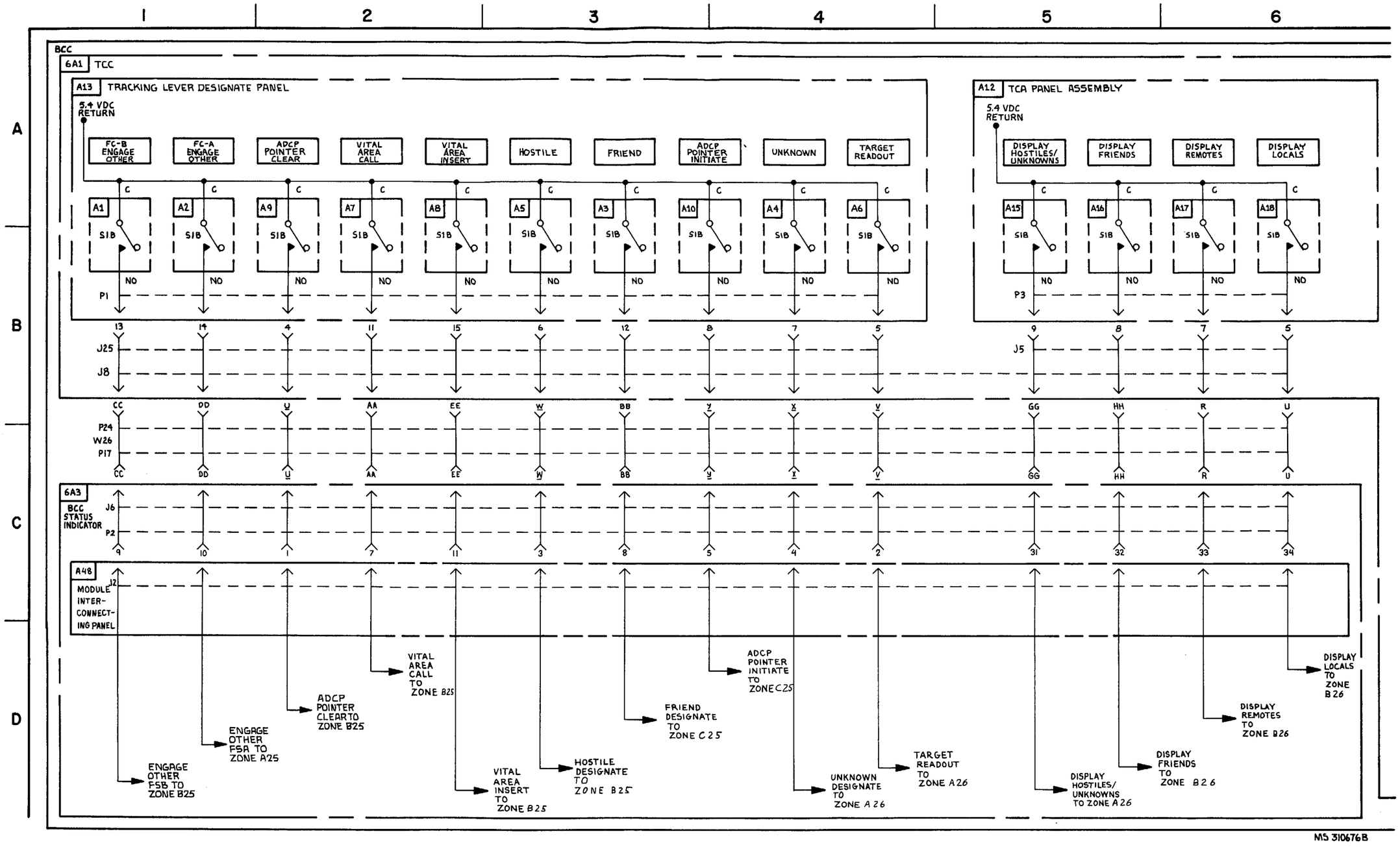

FIGURE 3-34. TACTICAL STATUS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 6)

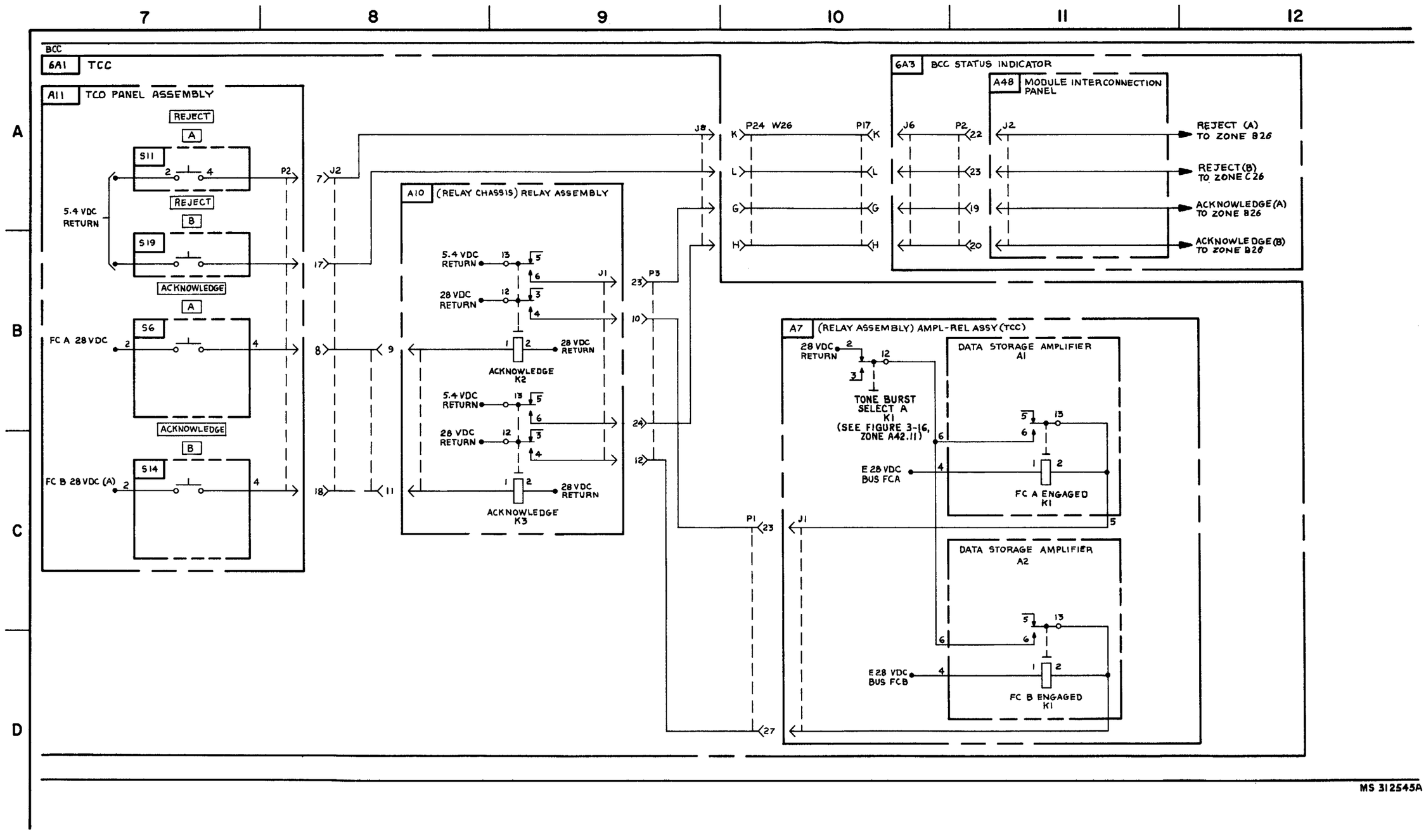

FIGURE 3-34. TACTICAL STATUS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 6).

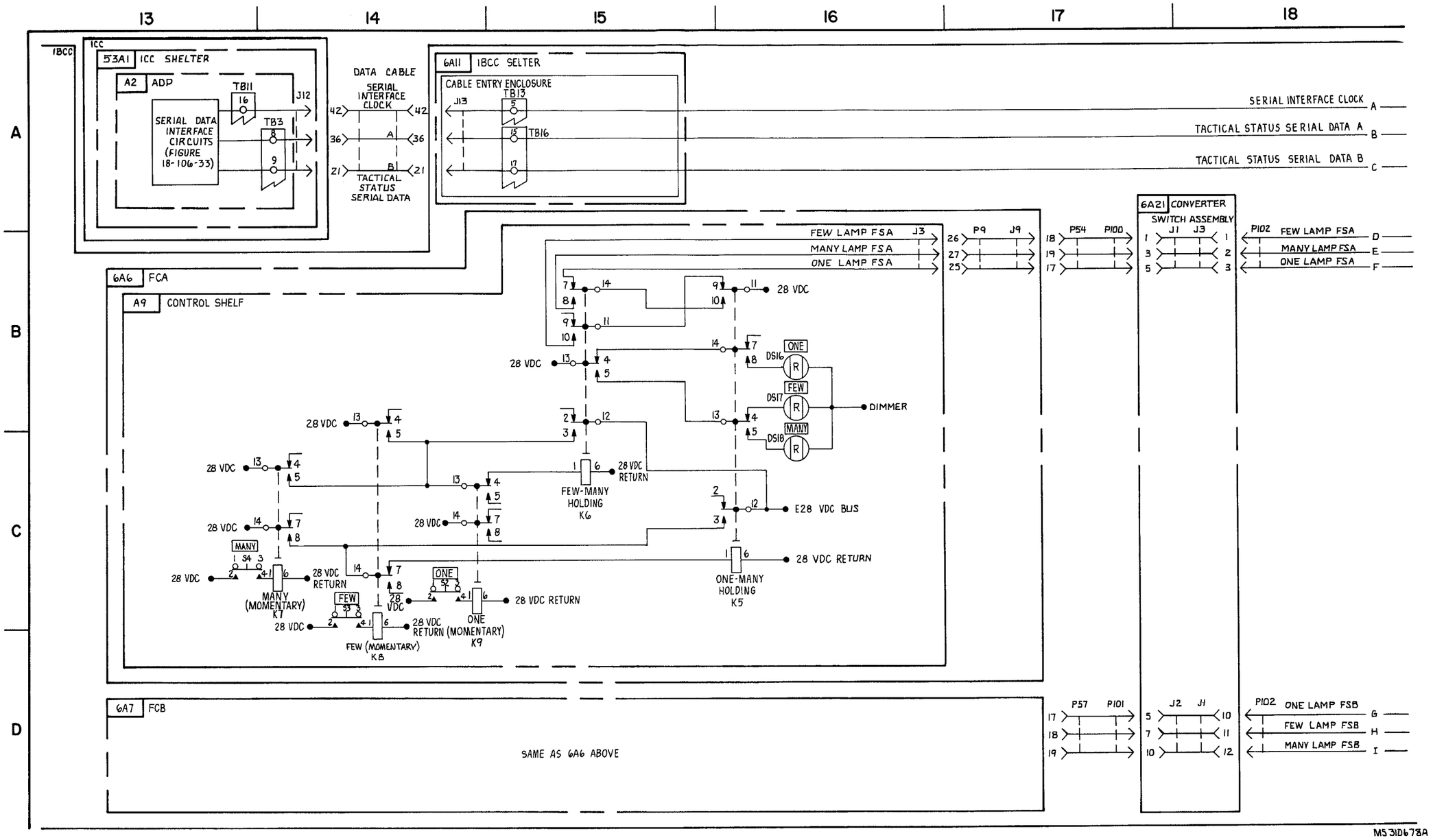

FIGURE 3-34. TACTICAL STATUS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 6).

3-209/3-210 blank

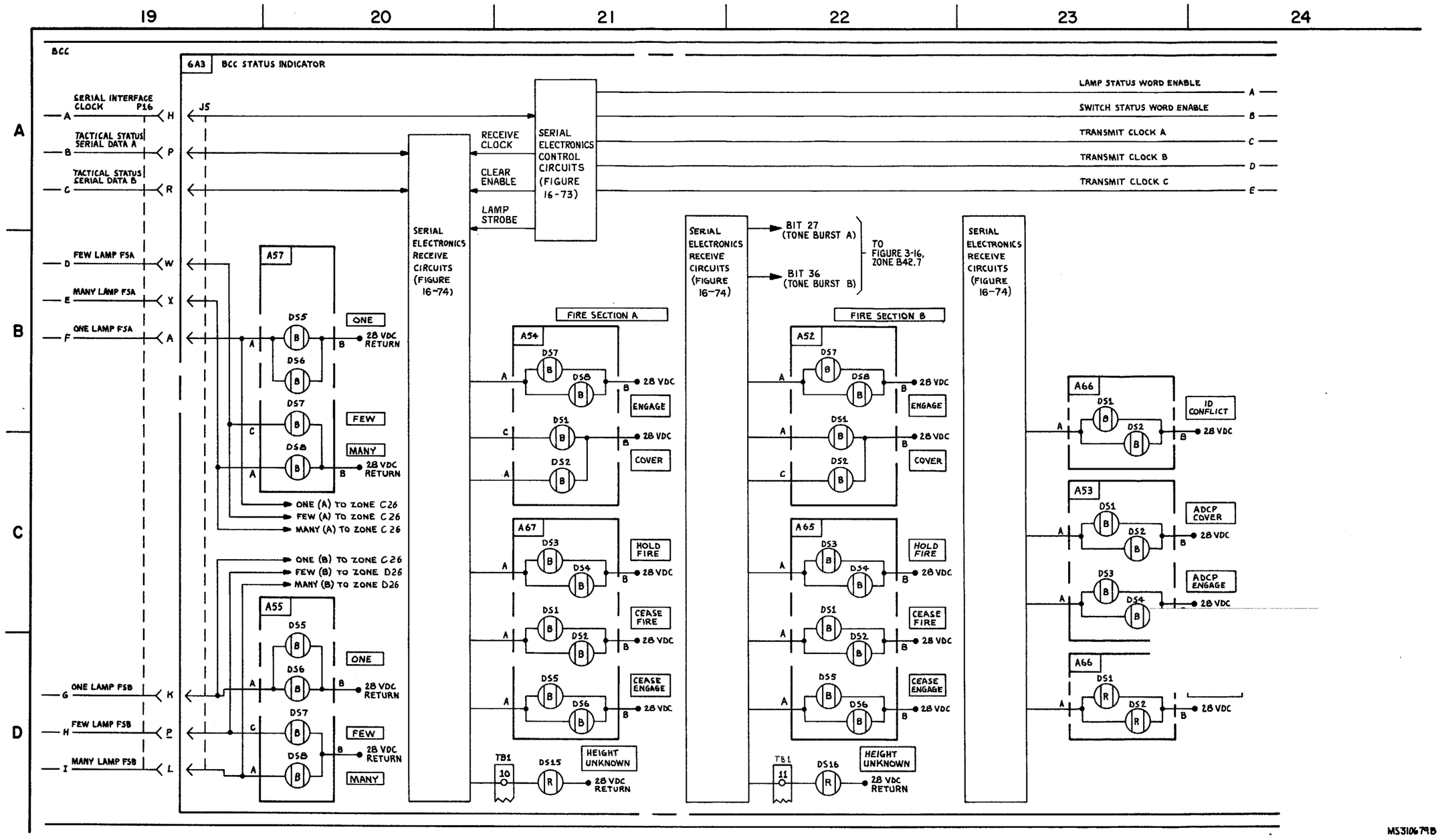

FIGURE 3-34. TACTICAL STATUS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 6)

3-211/3-212 blank

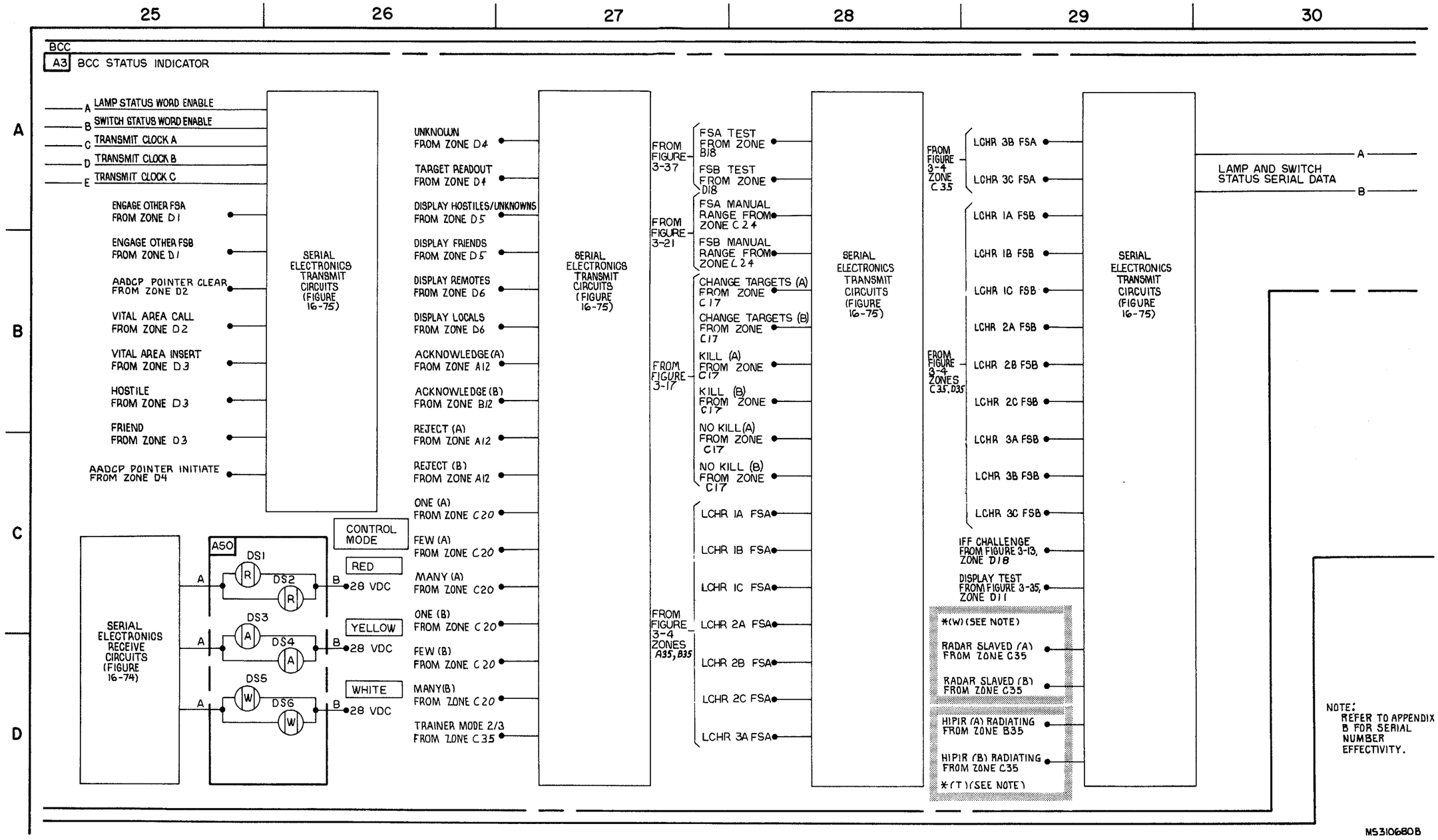

FIGURE 3-34. TACTICAL STATUS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 6).

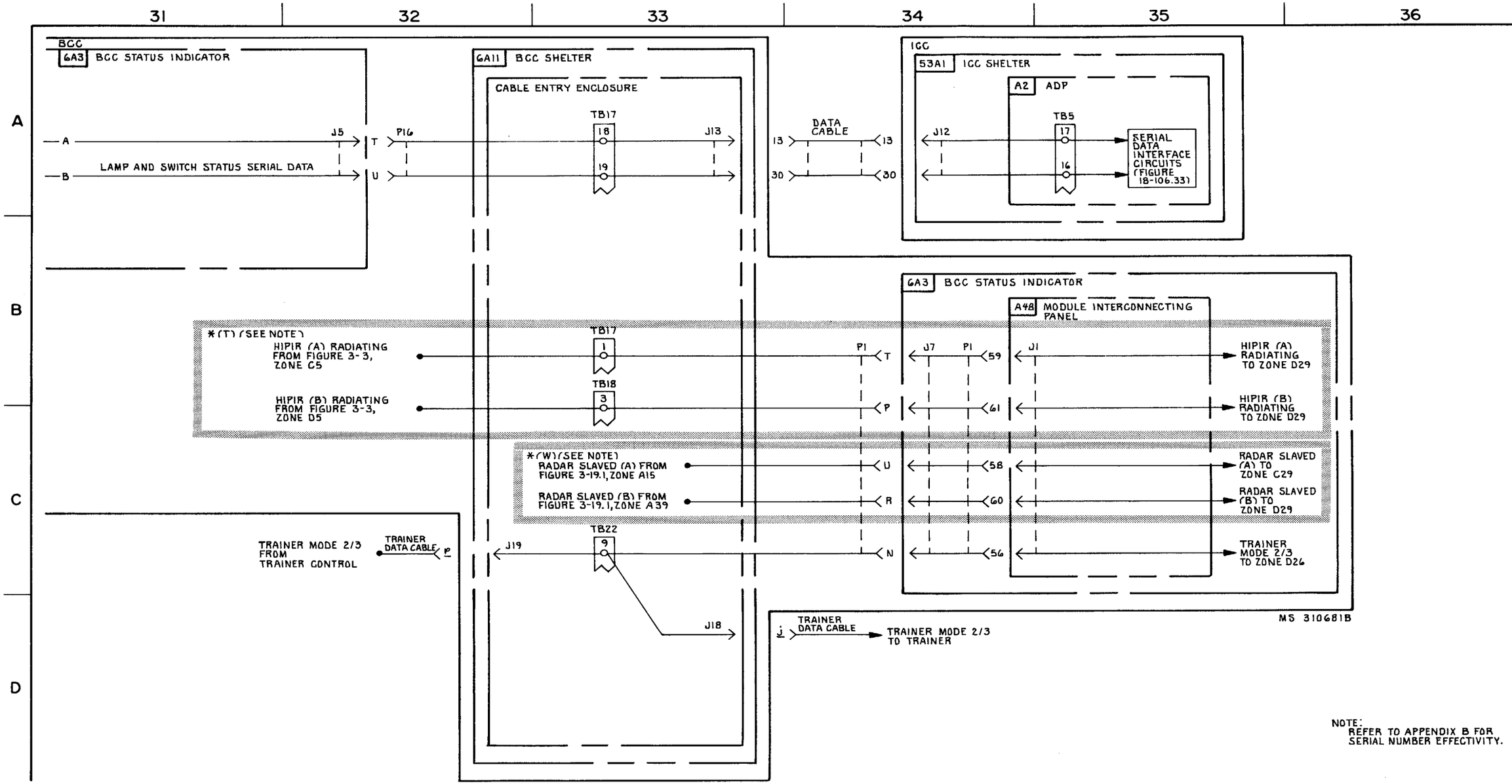

FIGURE 3-34. TACTICAL STATUS-SYSTEM FUNCTION DIAGRAM (SHEET 6 OF 6)

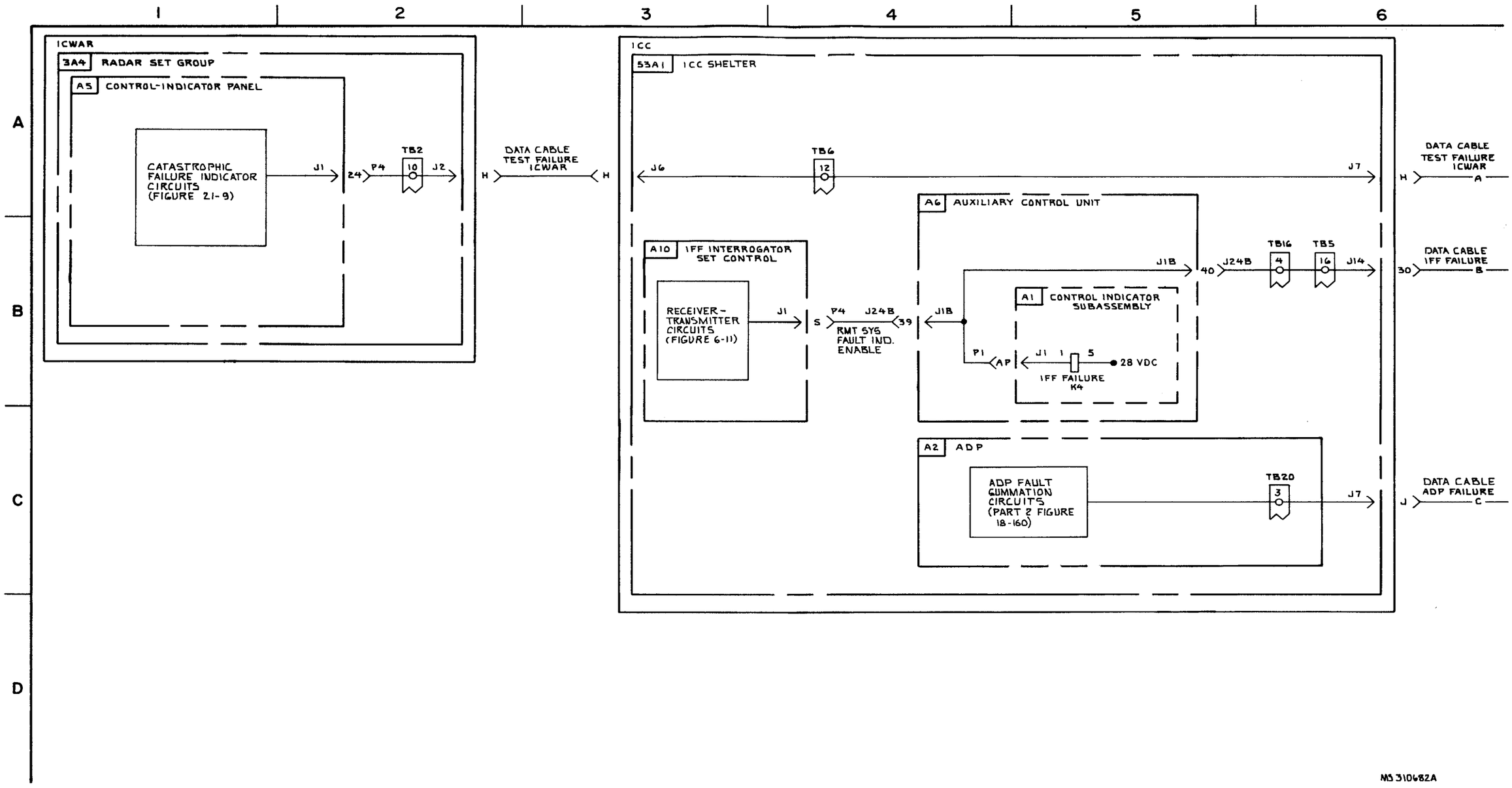

FIGURE 3-35. IFF, ADP, ICWAR, FAILURE ALD DISPLAY TEST- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2.)

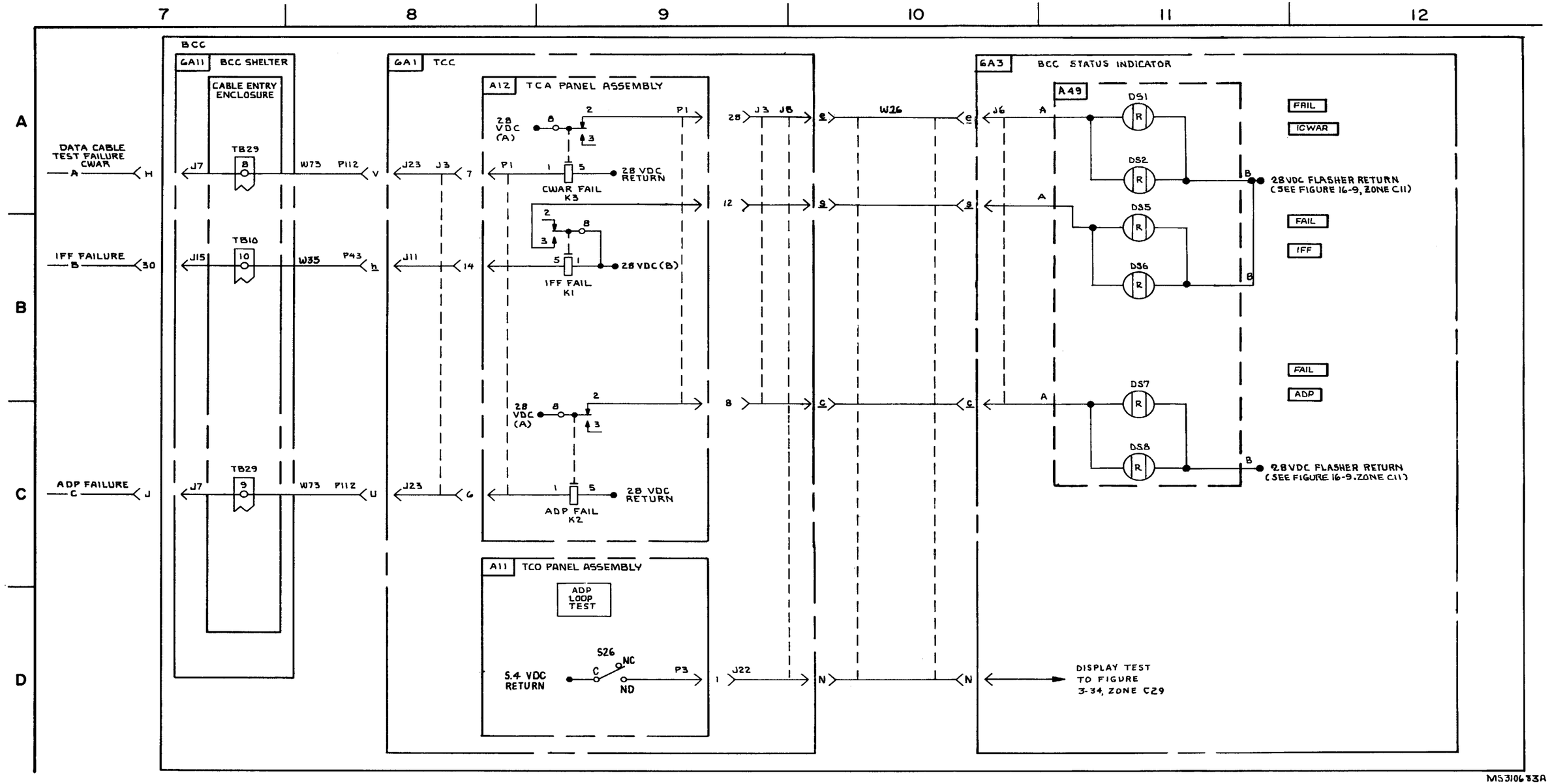

FIGURE 3-35. IFF, ADP, CWAR FAILURE AND DISPLAY TEST-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2)

3-217/3-218 blank

C9

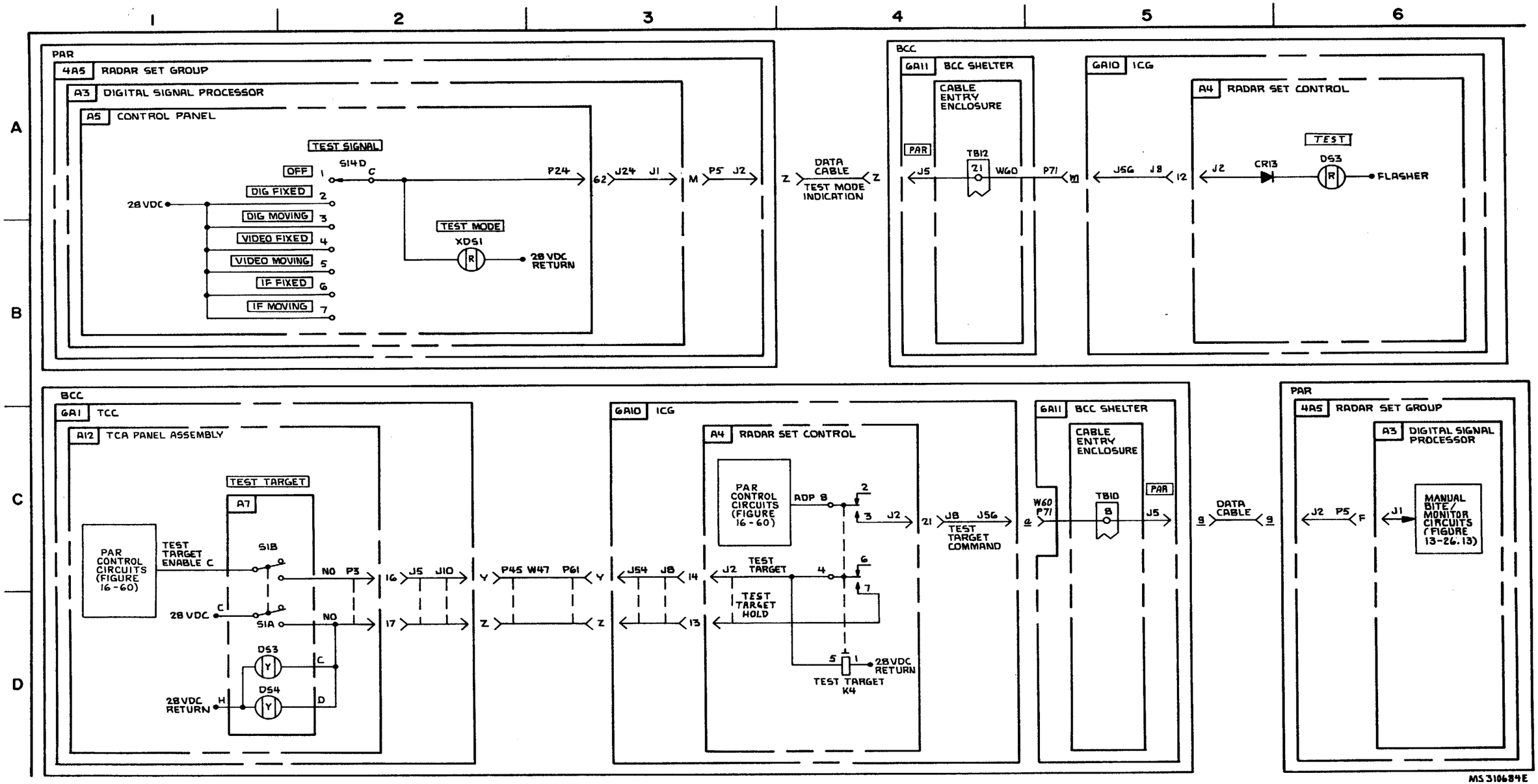

FIGURE 3-36. PAR TEST MODE INDICATION, AND TEST TARGET-SYSTEM FUNCTIONAL DIAGRAM.

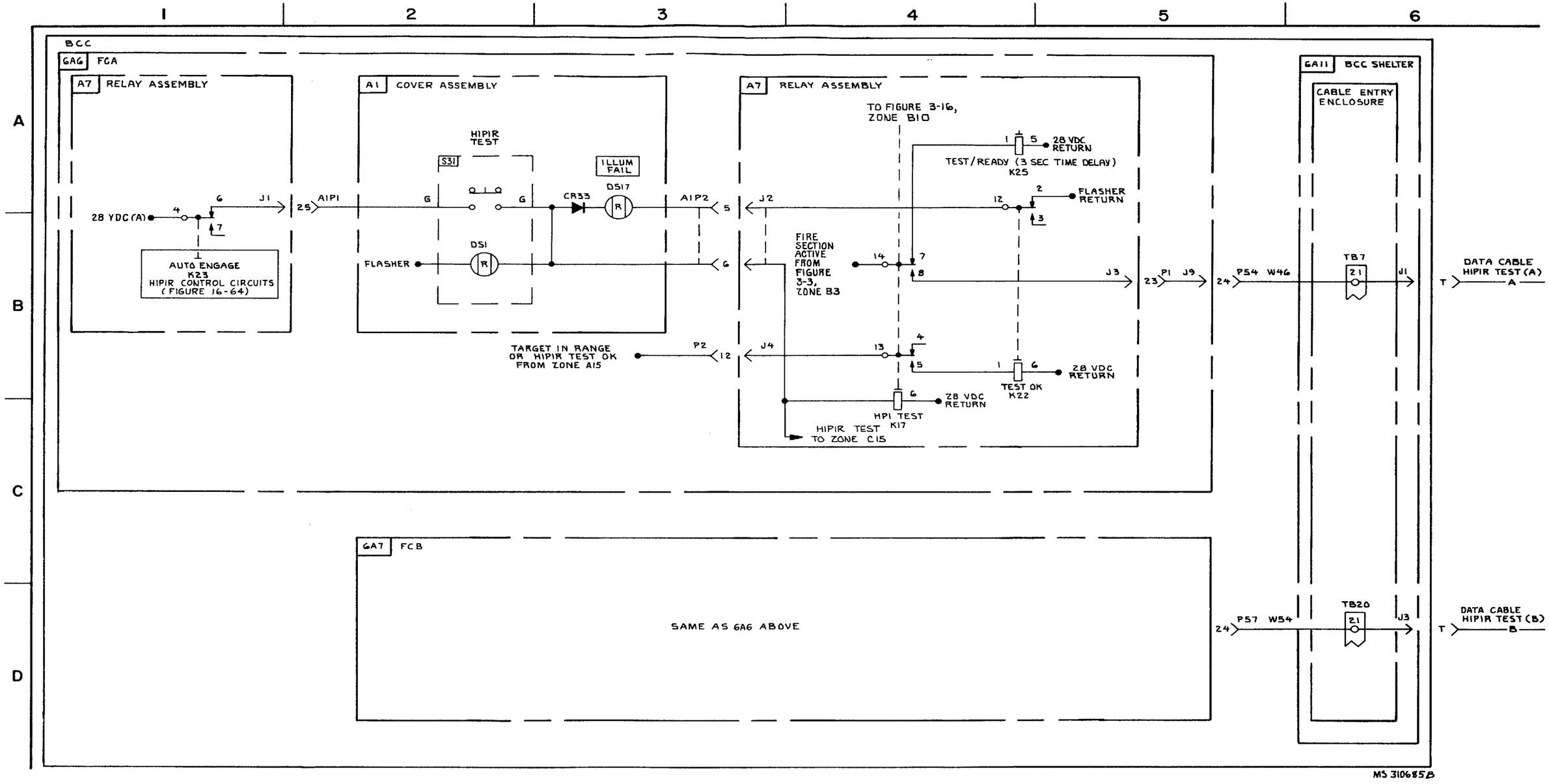

FIGURE 3-37. HIPIR TEST- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 3).

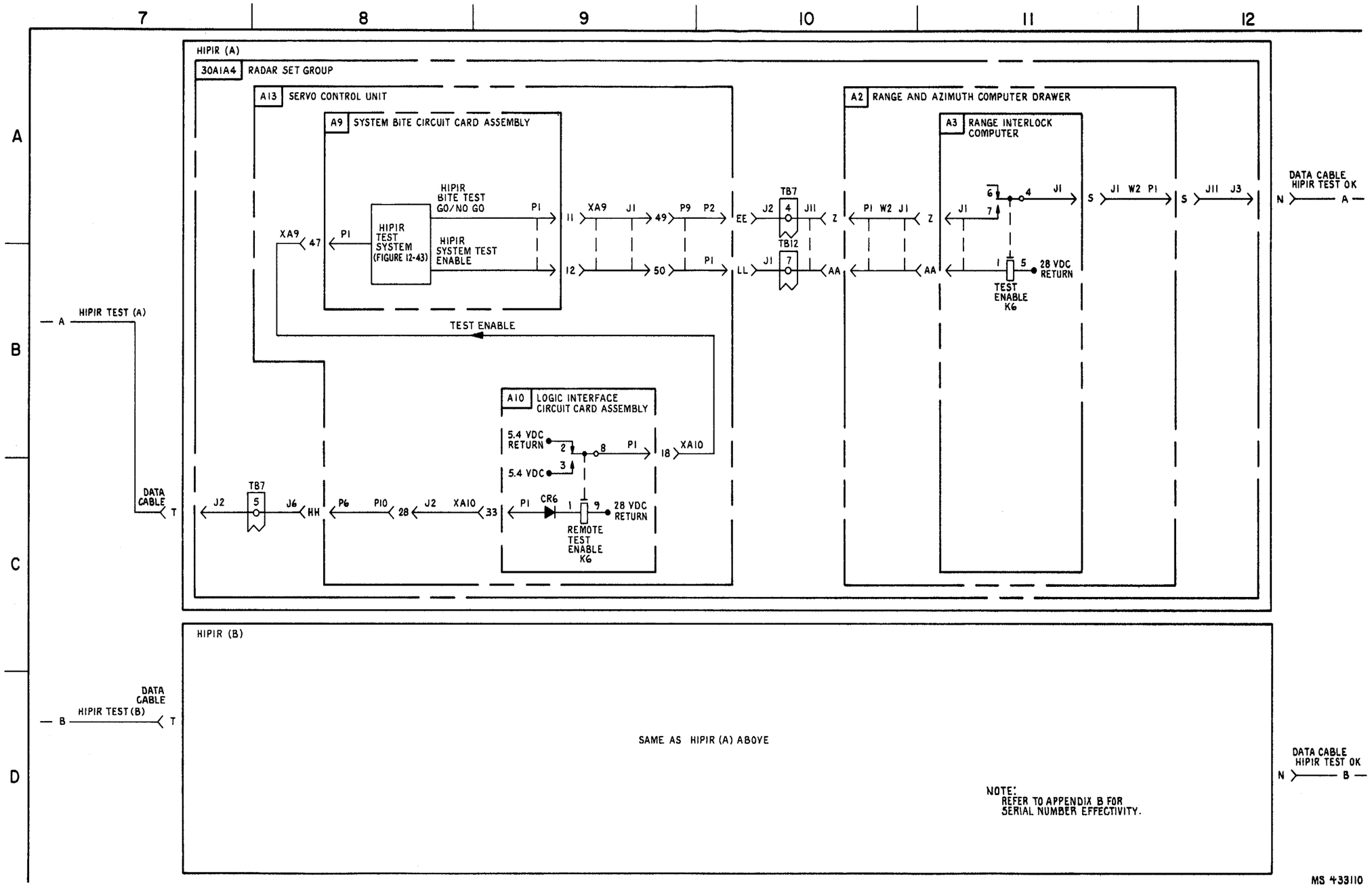

*FIGURE 3-37. HIPIR TEST * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM SHEET 2 OF 3).*

3-221/3-222 blank

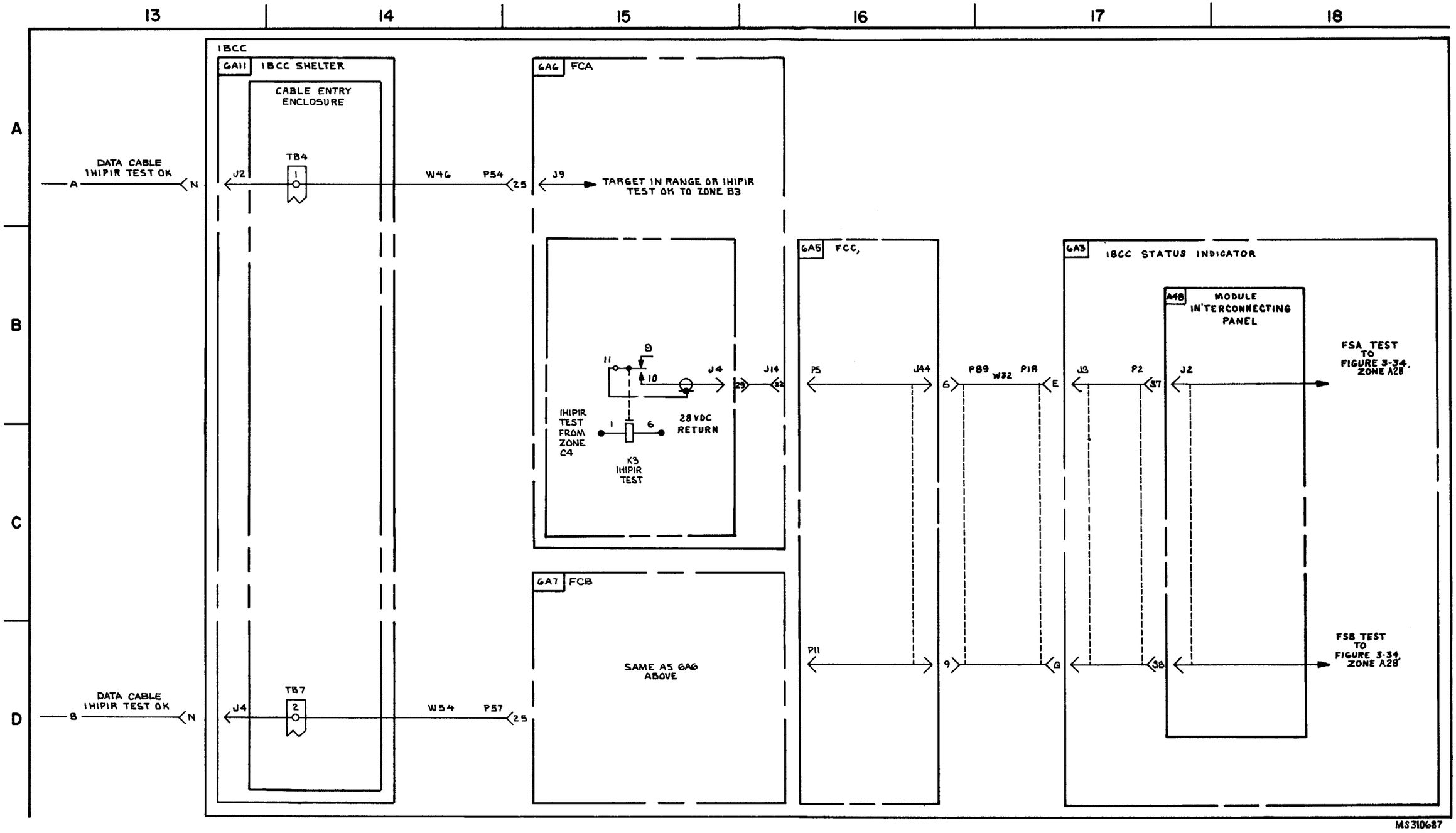

FIGURE 3-37. HIPIR (T)- SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 3).

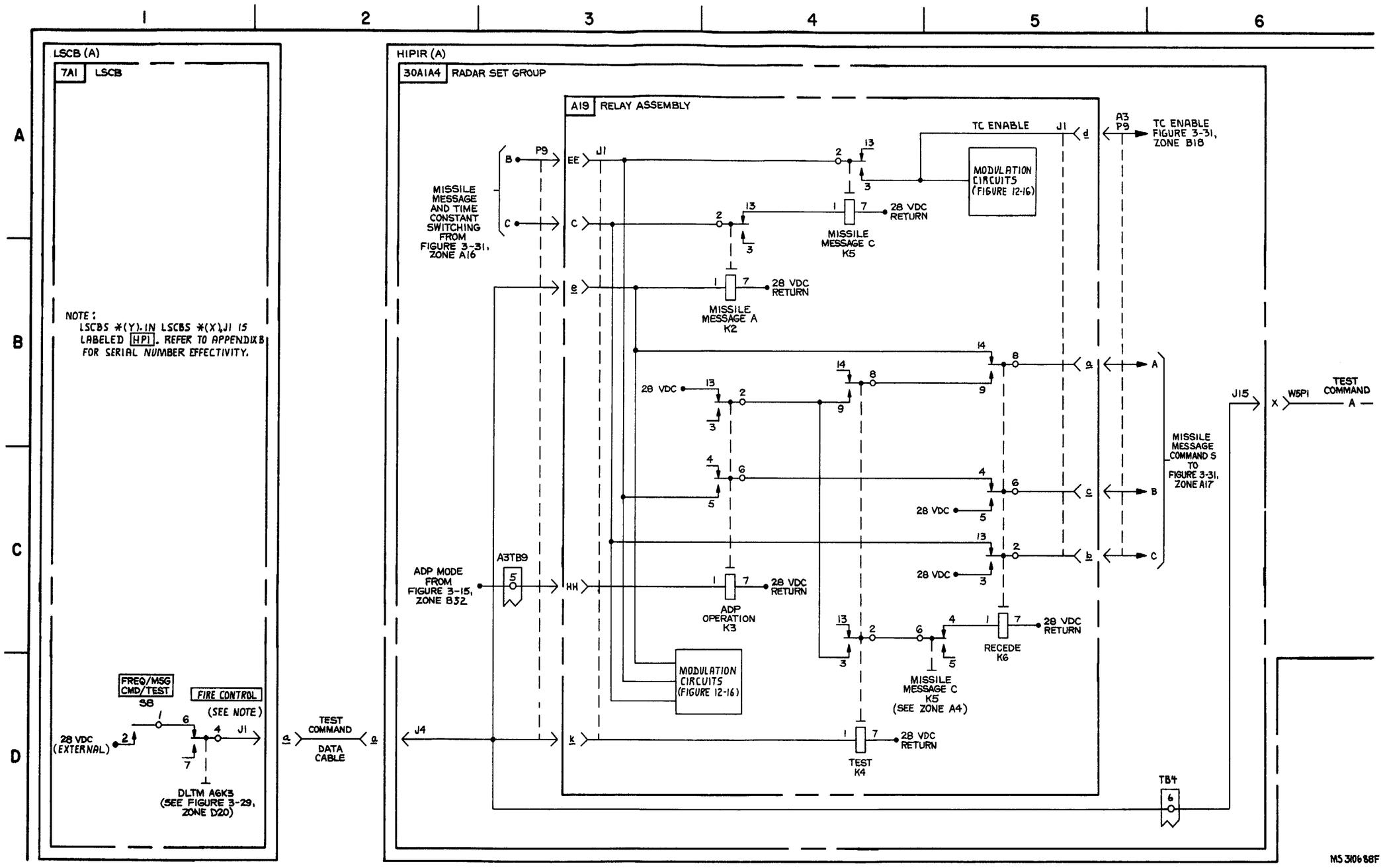

FIGURE 3-38. MISSILE MESSAGE AND FREQUENCY COMMAND TEST-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 3).

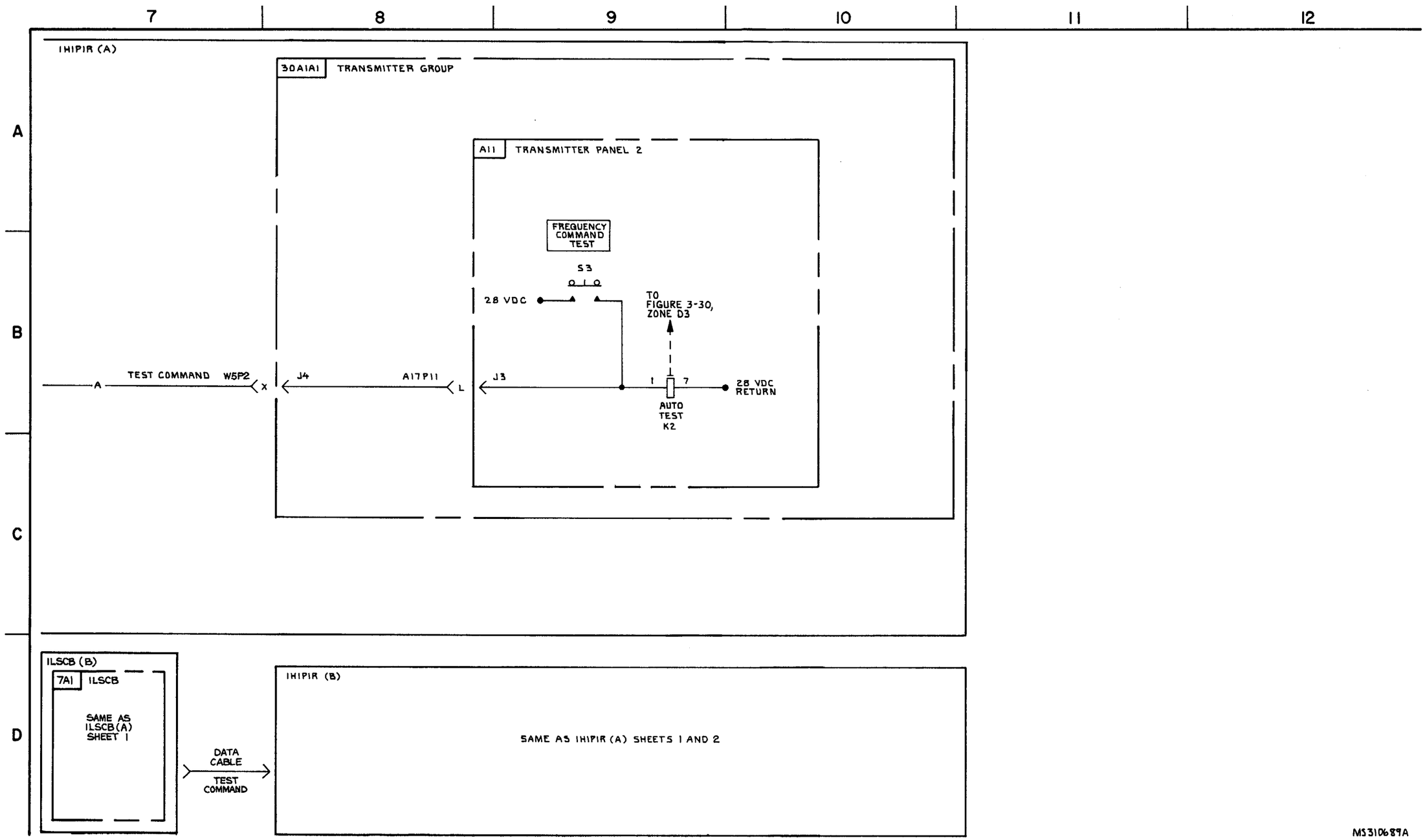

FIGURE 3-38. MISSILE MESSAGE AND FREQUENCY COMMAND TEST-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 3).

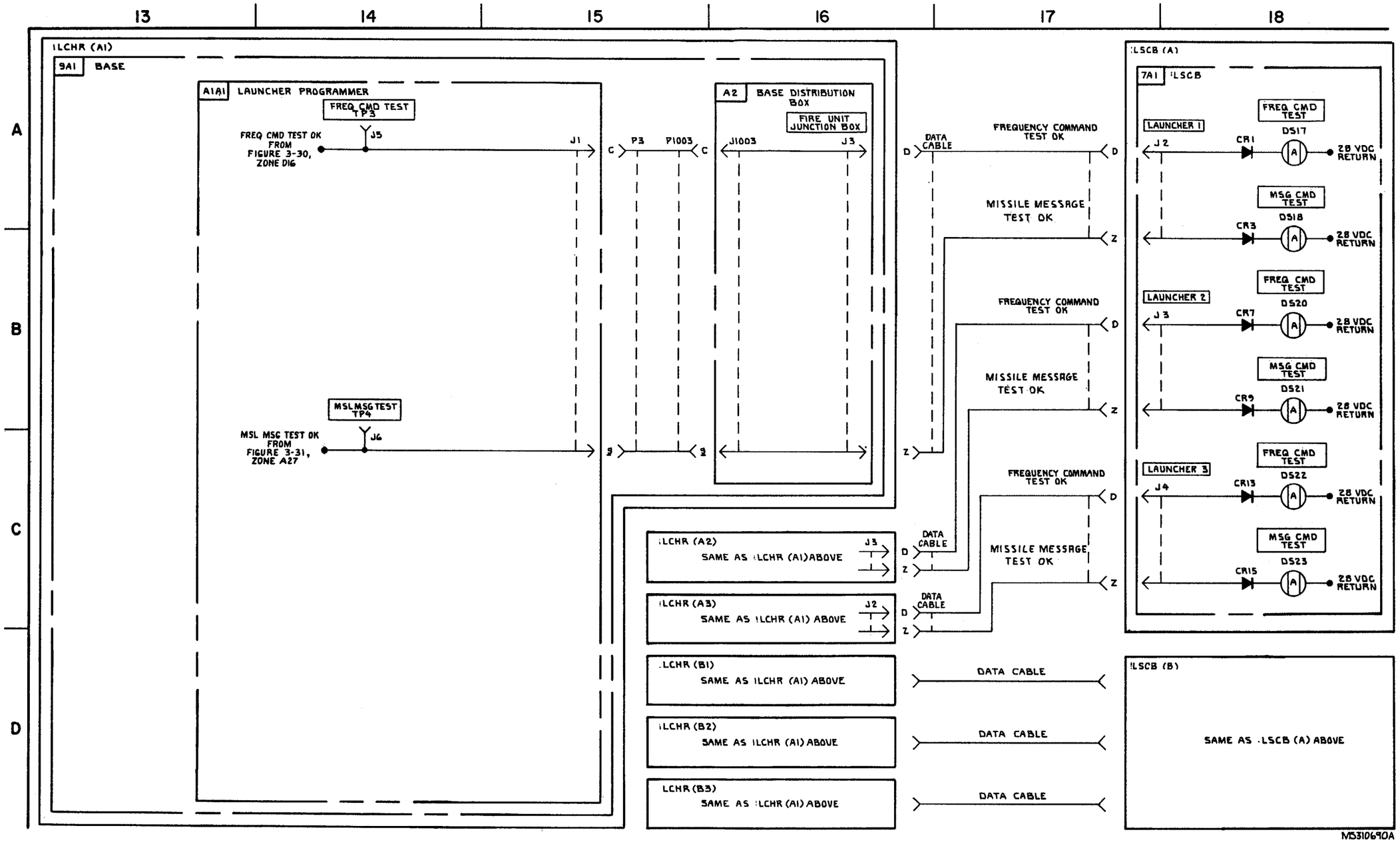

FIGURE 3-38. MISSILE MESSAGE AND FREQUENCY COMMAND TEST - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 3).
FIGURE 3-39. (DELETED)

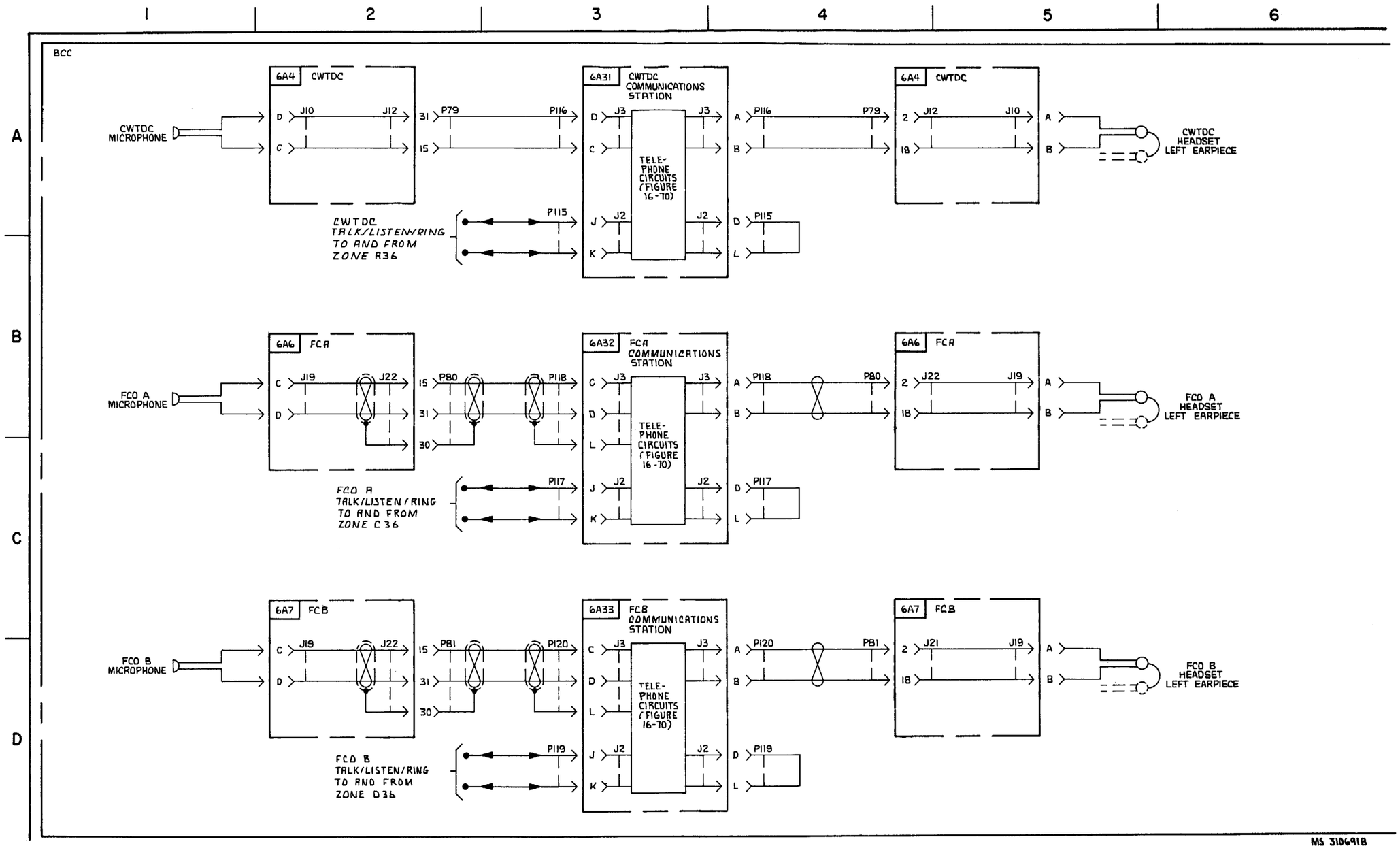

FIGURE 3-40. TELEPHONE COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 12).

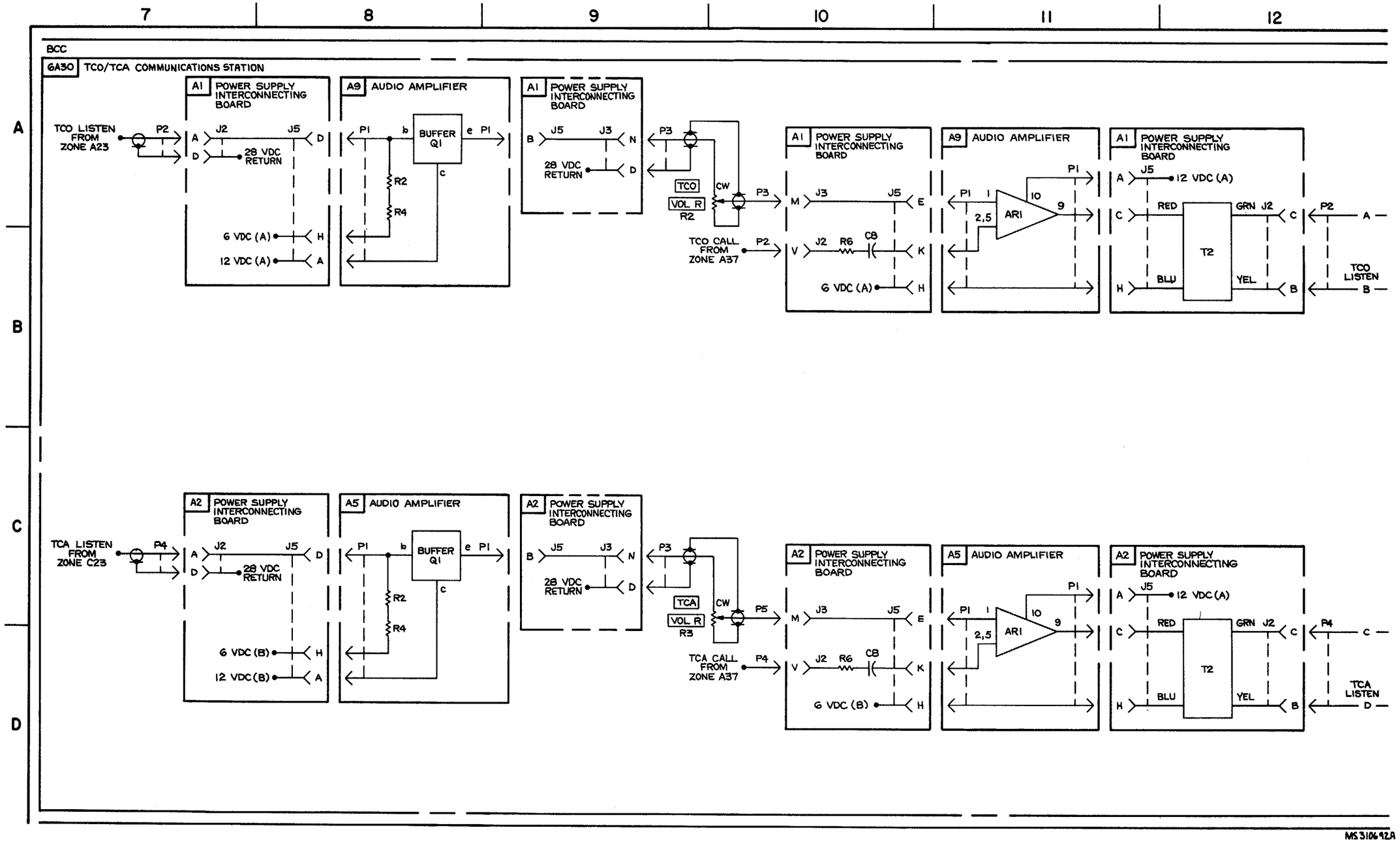

FIGURE 3-40. TELEPHONE COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 12).

3-229/3-230 blank

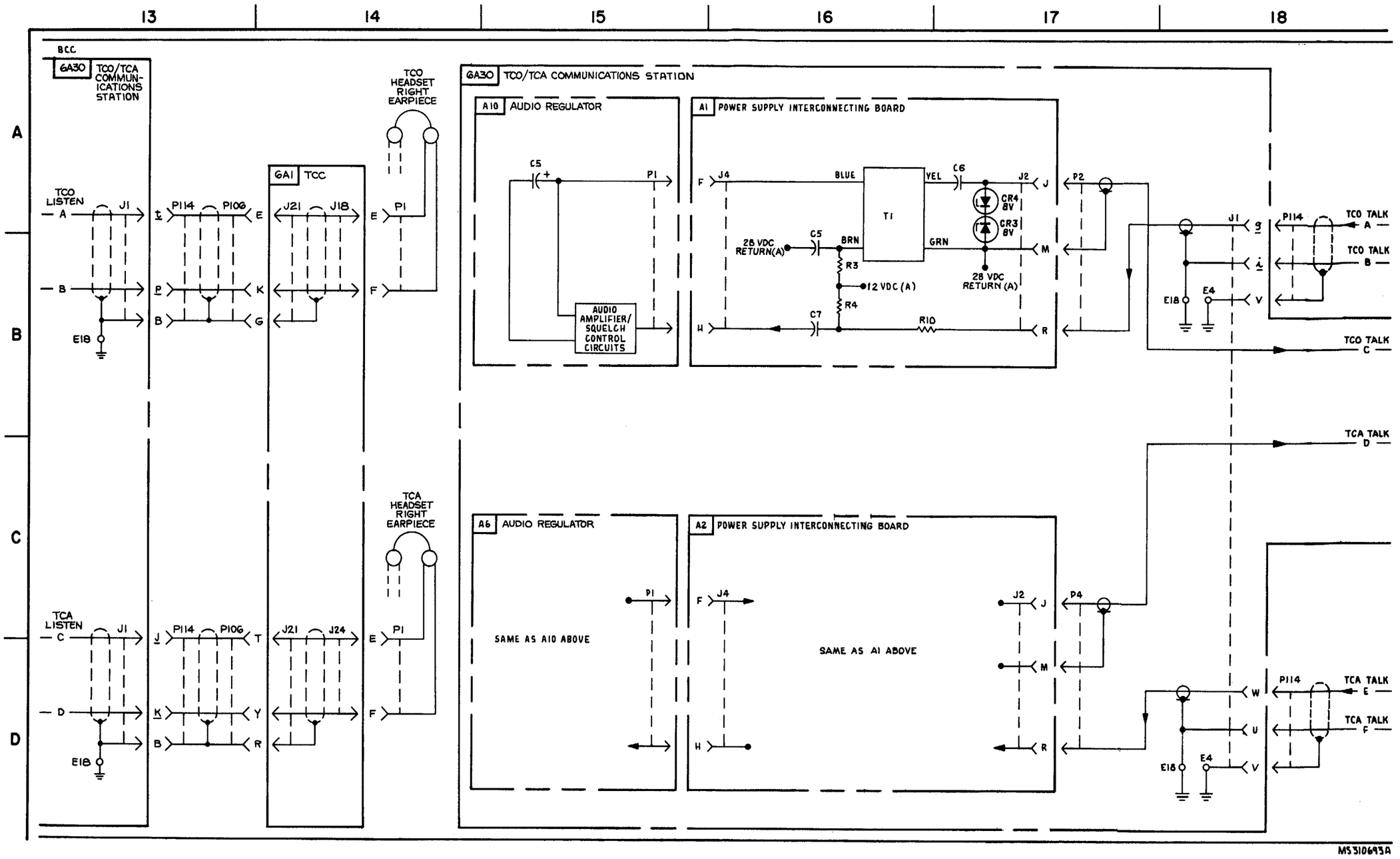

FIGURE 3-40. TELEPHONE COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 12).

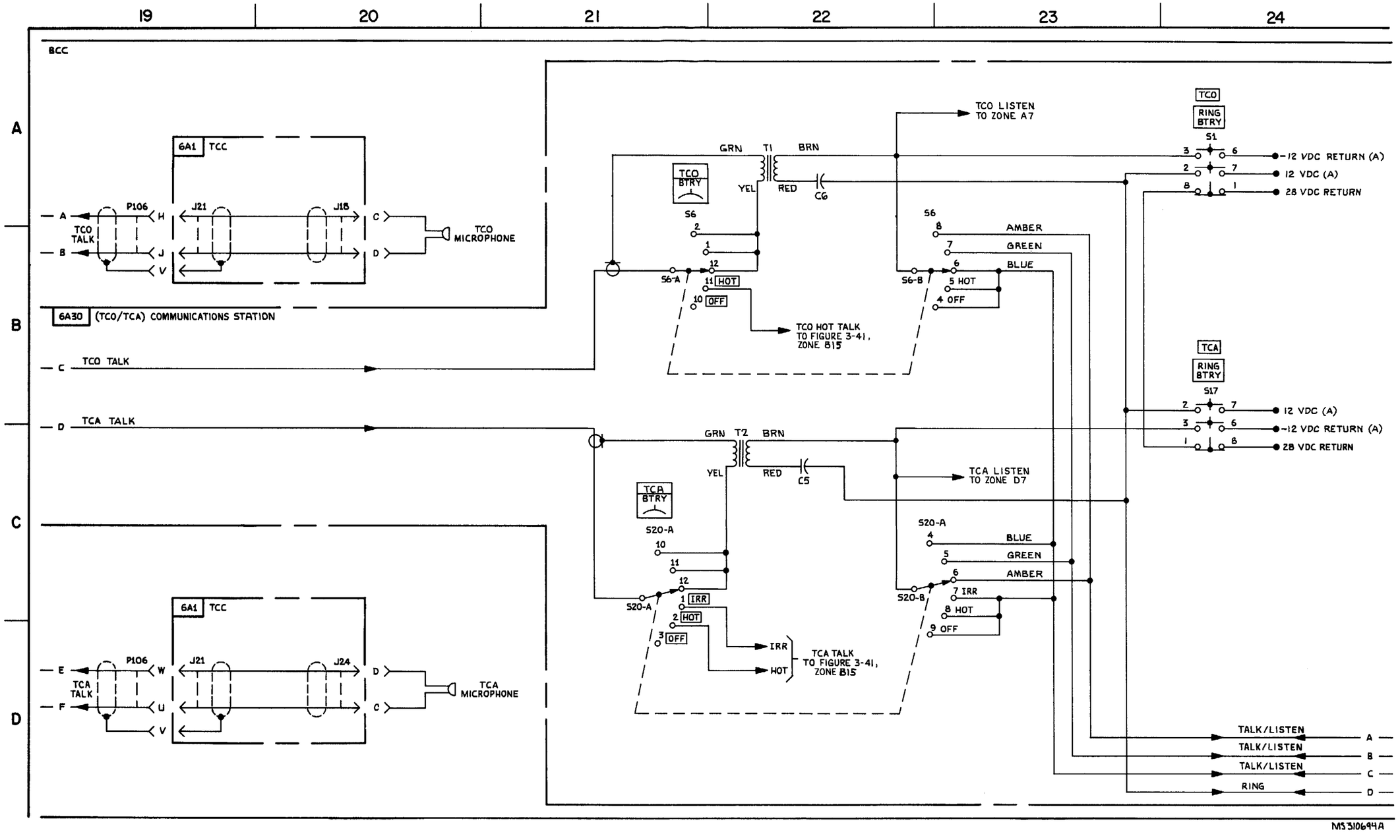

FIGURE 3-40. TELEPHONE COMMUNICATION5 -SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 12).

3-233/3-234 blank

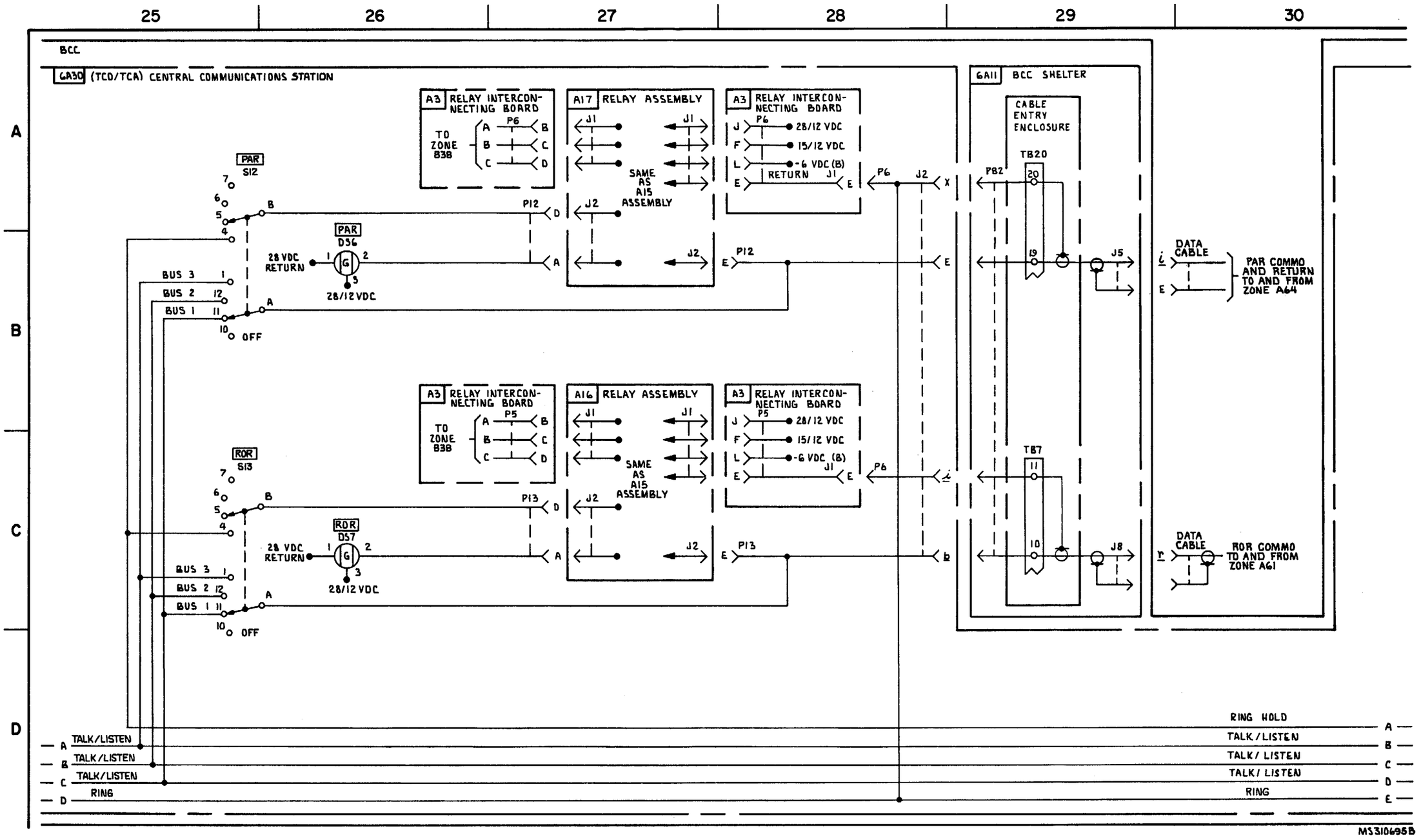

FIGURE 3-40. TELEPHONE COMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 12).

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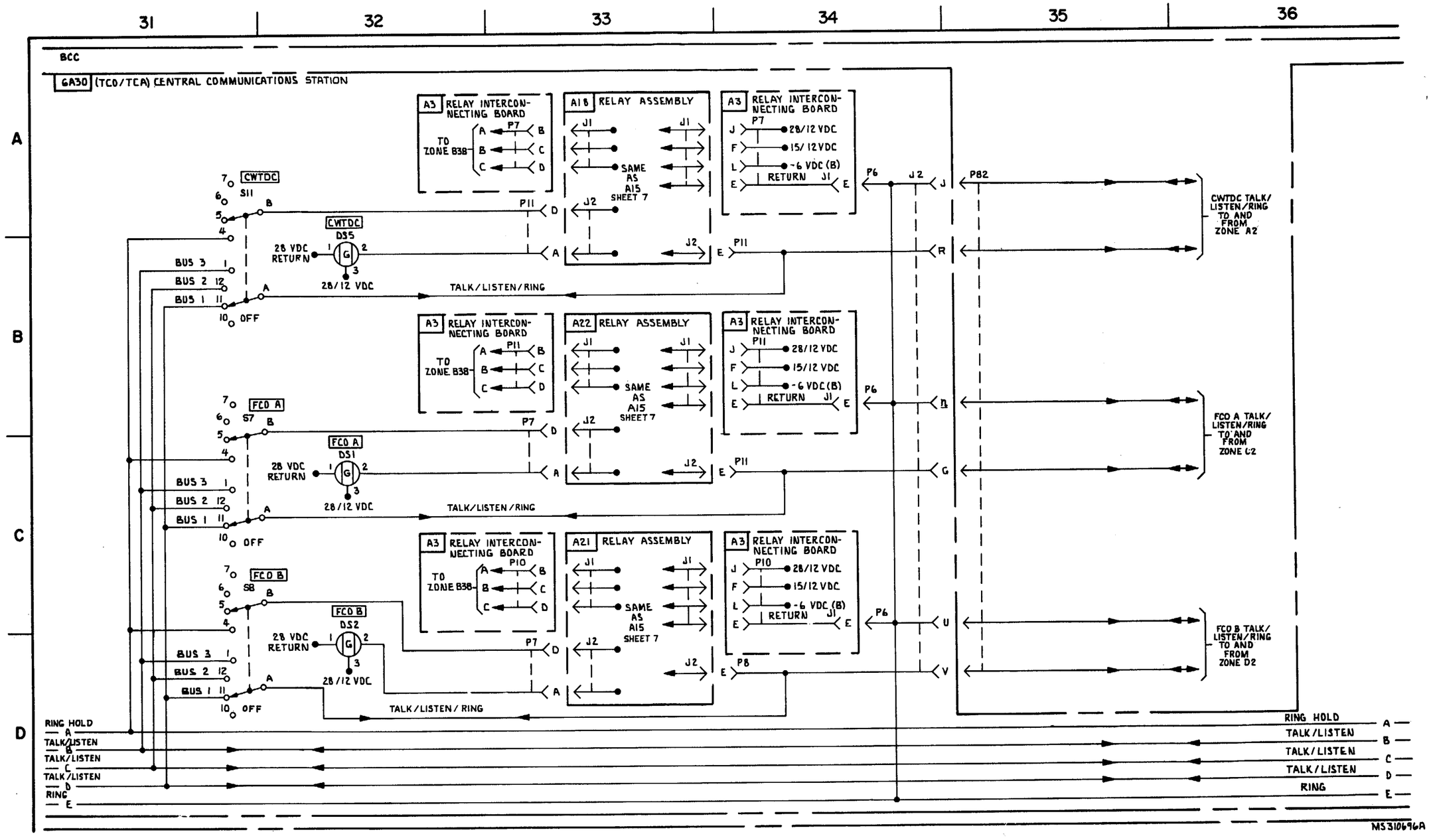

FIGURE 3-40. TELEPHONE COMMUNICATIONS -SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 12).

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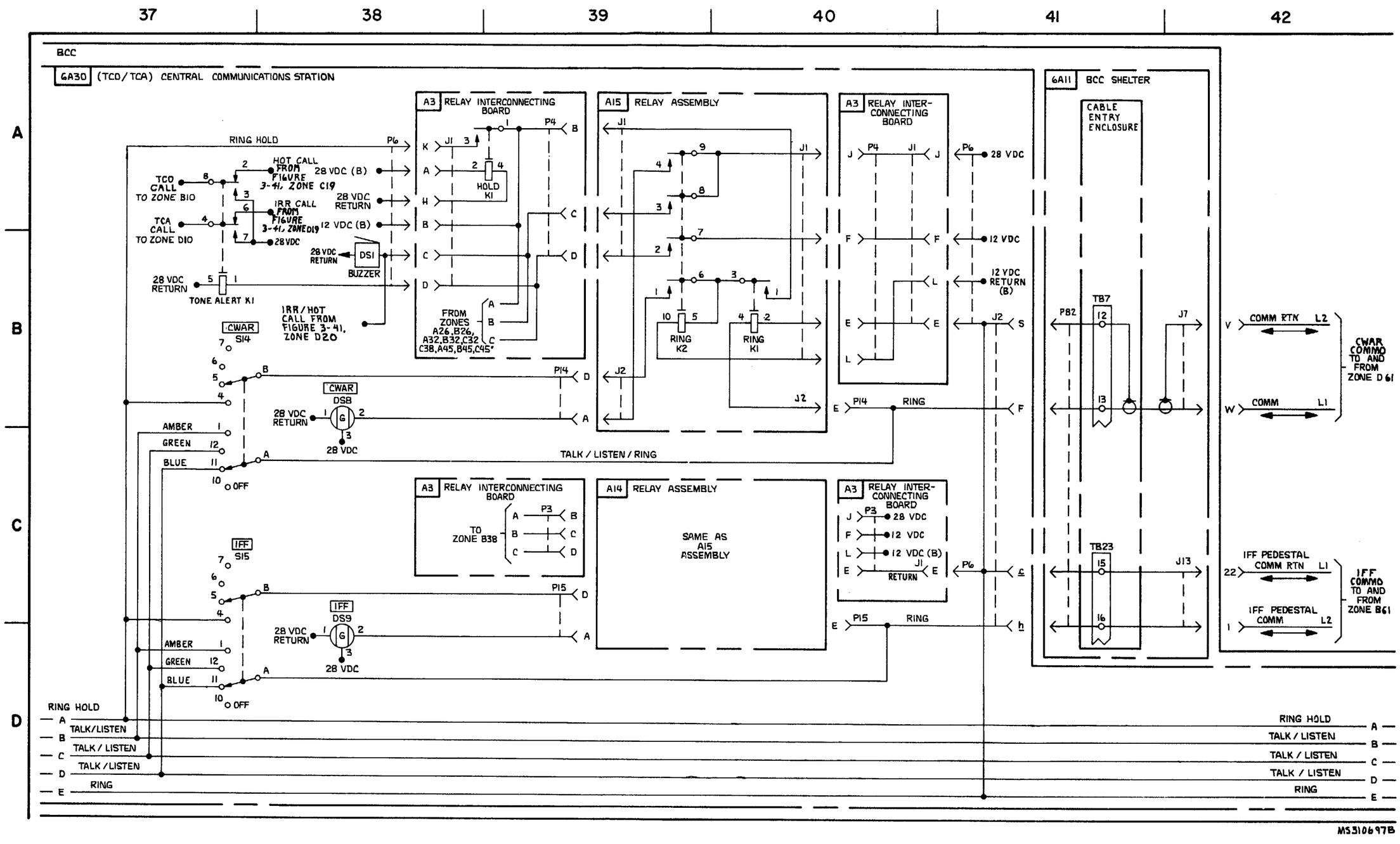

FIGURE 3-40. TELEPHONE COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 12).

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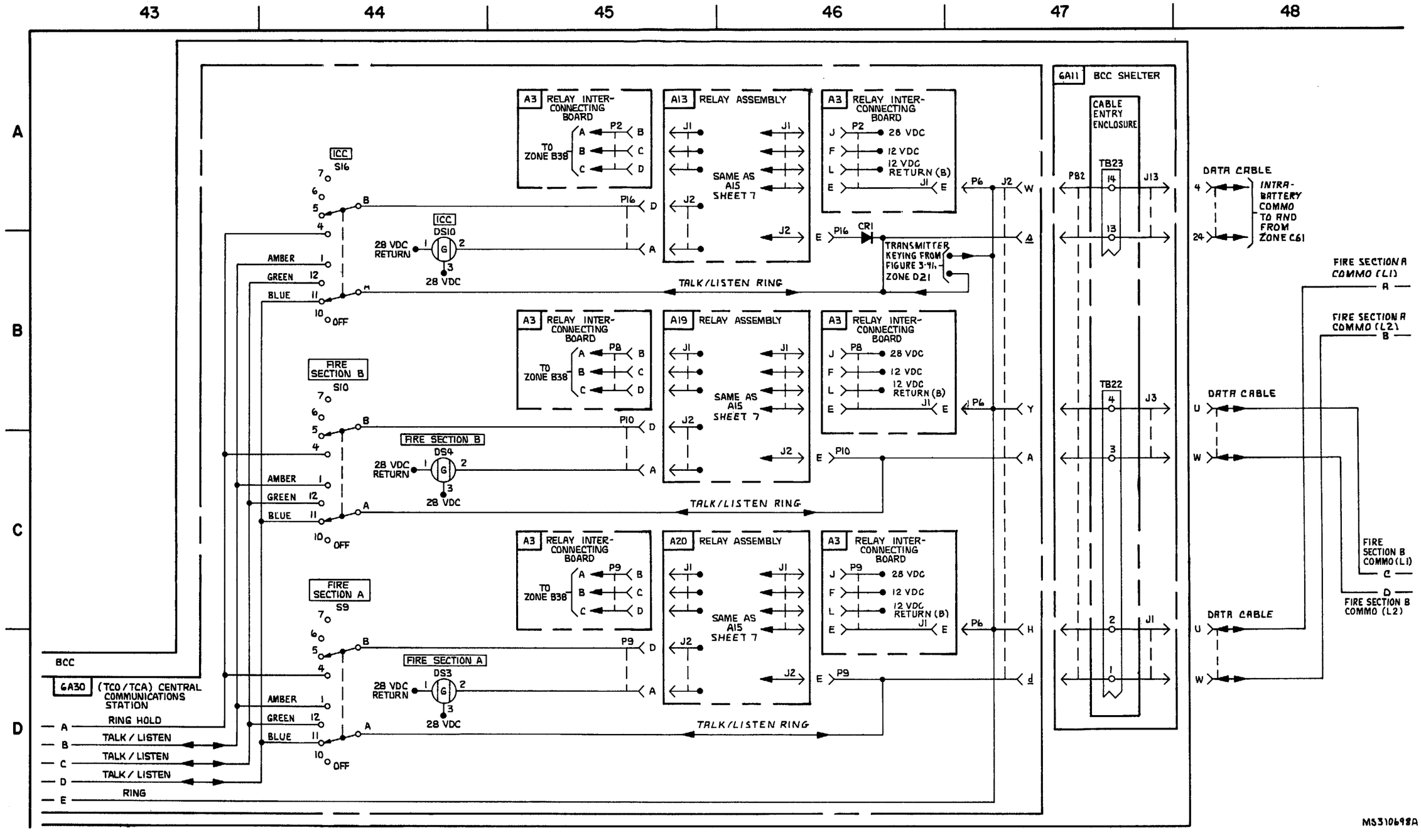

FIGURE 3-40. TELEPHONE COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 12).

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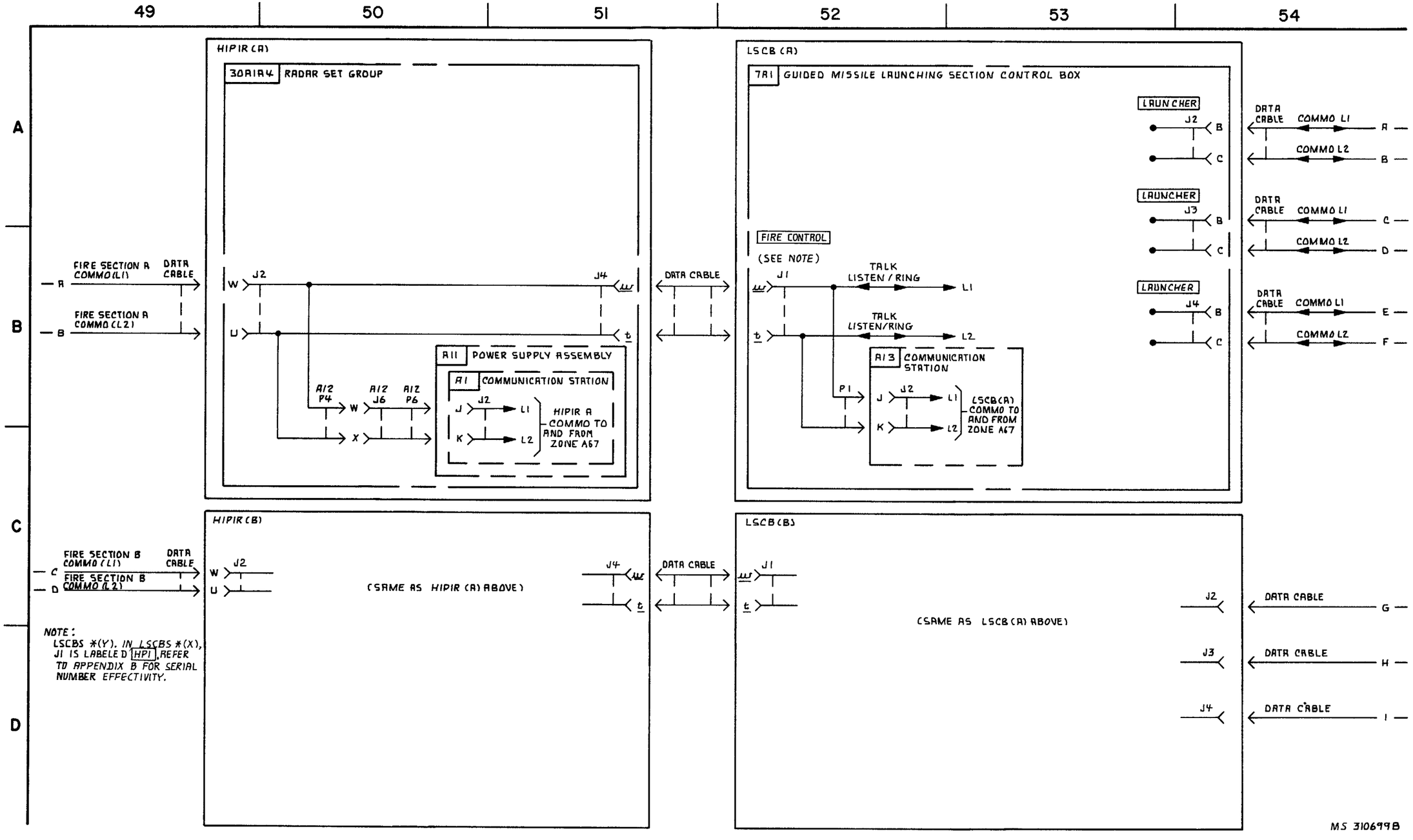


FIGURE 3-40. TELEPHONE COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 9 OF 12).

3-243 3-244 blank

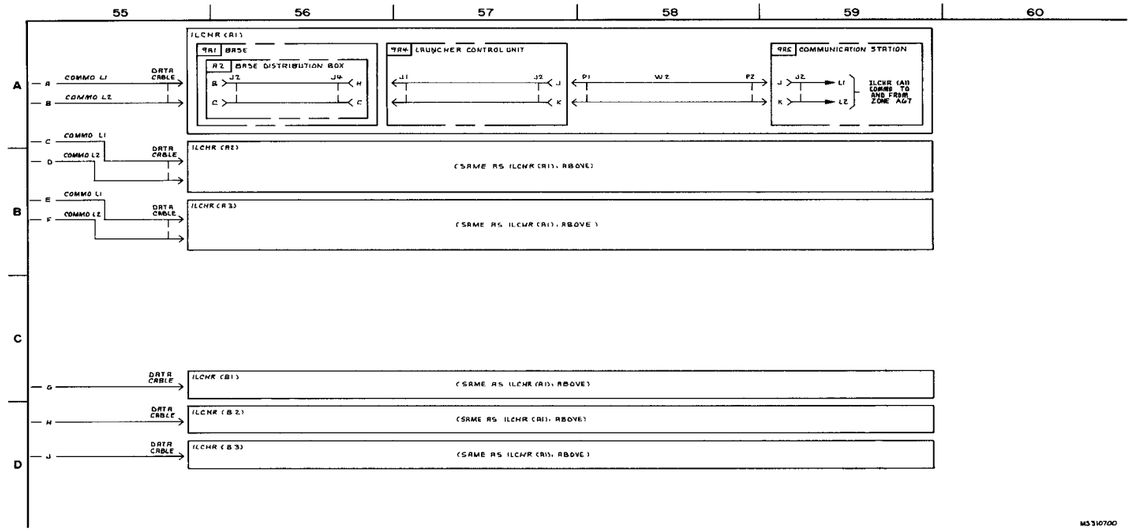


Figure 3-40. TELEPHONE COMMUNICATIONS- SYSTEM FUNCTIONAL DIAGRAM (SHEET 10 OF 12)

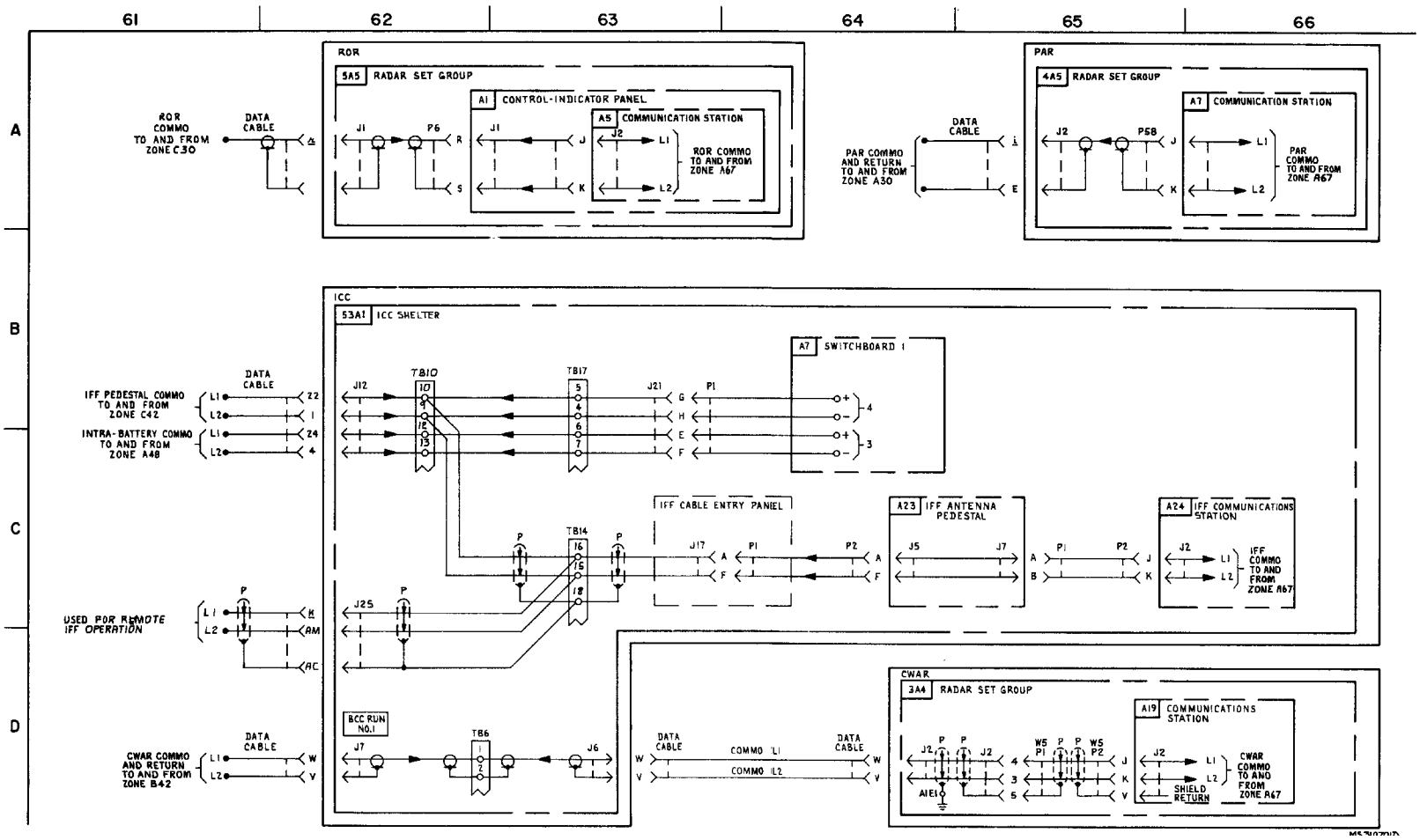
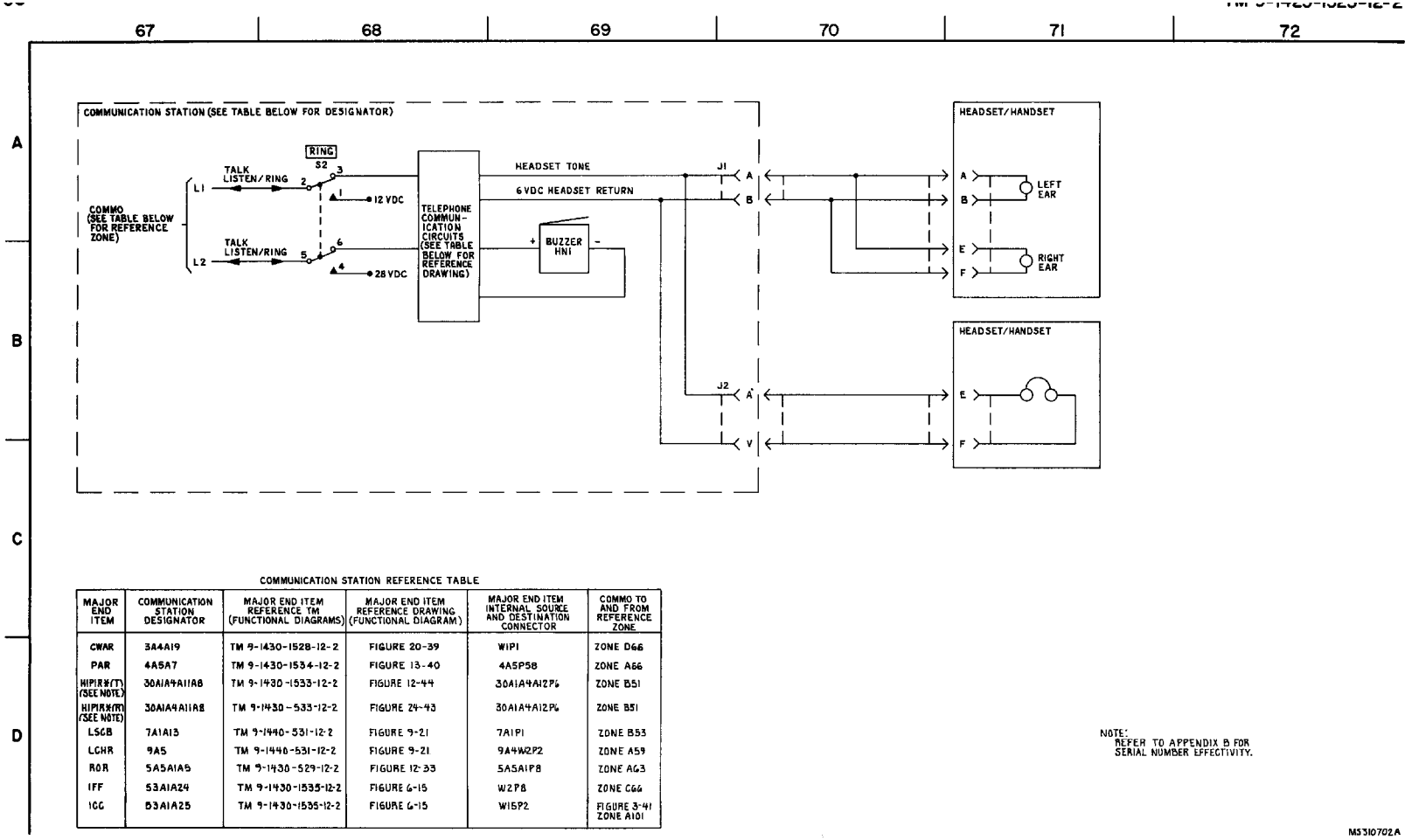


FIGURE 3-40. TELEPHONE COMMUNICATIONS- SYSTEM FUNCTIONAL DIAGRAM (SHEET 11 OF 12)

3-247/3-248 BLANK



COMMUNICATION STATION REFERENCE TABLE

MAJOR END ITEM	COMMUNICATION STATION DESIGNATOR	MAJOR END ITEM REFERENCE TM (FUNCTIONAL DIAGRAMS)	MAJOR END ITEM REFERENCE DRAWING (FUNCTIONAL DIAGRAM)	MAJOR END ITEM INTERNAL SOURCE AND DESTINATION CONNECTOR	COMMO TO AND FROM REFERENCE ZONE
CWAR	3A4A19	TM 9-1430-1528-12-2	FIGURE 20-39	W1P1	ZONE D66
PAR	4A5A7	TM 9-1430-1534-12-2	FIGURE 13-40	4A5P58	ZONE A66
HIPIR*(T) (SEE NOTE)	30A1A4A11A8	TM 9-1430-1533-12-2	FIGURE 12-44	30A1A4A12P4	ZONE B51
HIPIR*(R) (SEE NOTE)	30A1A4A11A8	TM 9-1430-533-12-2	FIGURE 24-43	30A1A4A12P4	ZONE B51
LSCB	7A1A13	TM 9-1440-531-12-2	FIGURE 9-21	7A1P1	ZONE B53
LCHR	9A5	TM 9-1440-531-12-2	FIGURE 9-21	9A4W2P2	ZONE A59
ROR	5A5A1A5	TM 9-1430-529-12-2	FIGURE 12-33	5A5A1P8	ZONE AG3
IFF	53A1A24	TM 9-1430-1535-12-2	FIGURE 6-15	W2P8	ZONE C66
ICC	53A1A25	TM 9-1430-1535-12-2	FIGURE 6-15	W15P2	FIGURE 3-41 ZONE A101

NOTE:
REFER TO APPENDIX B FOR SERIAL NUMBER EFFECTIVITY.

MS310702A

FIGURE 3-40. TELEPHONE COMMUNICATIONS- SYSTEM FUNCTIONAL DIAGRAM (SHEET 12 OF 12)

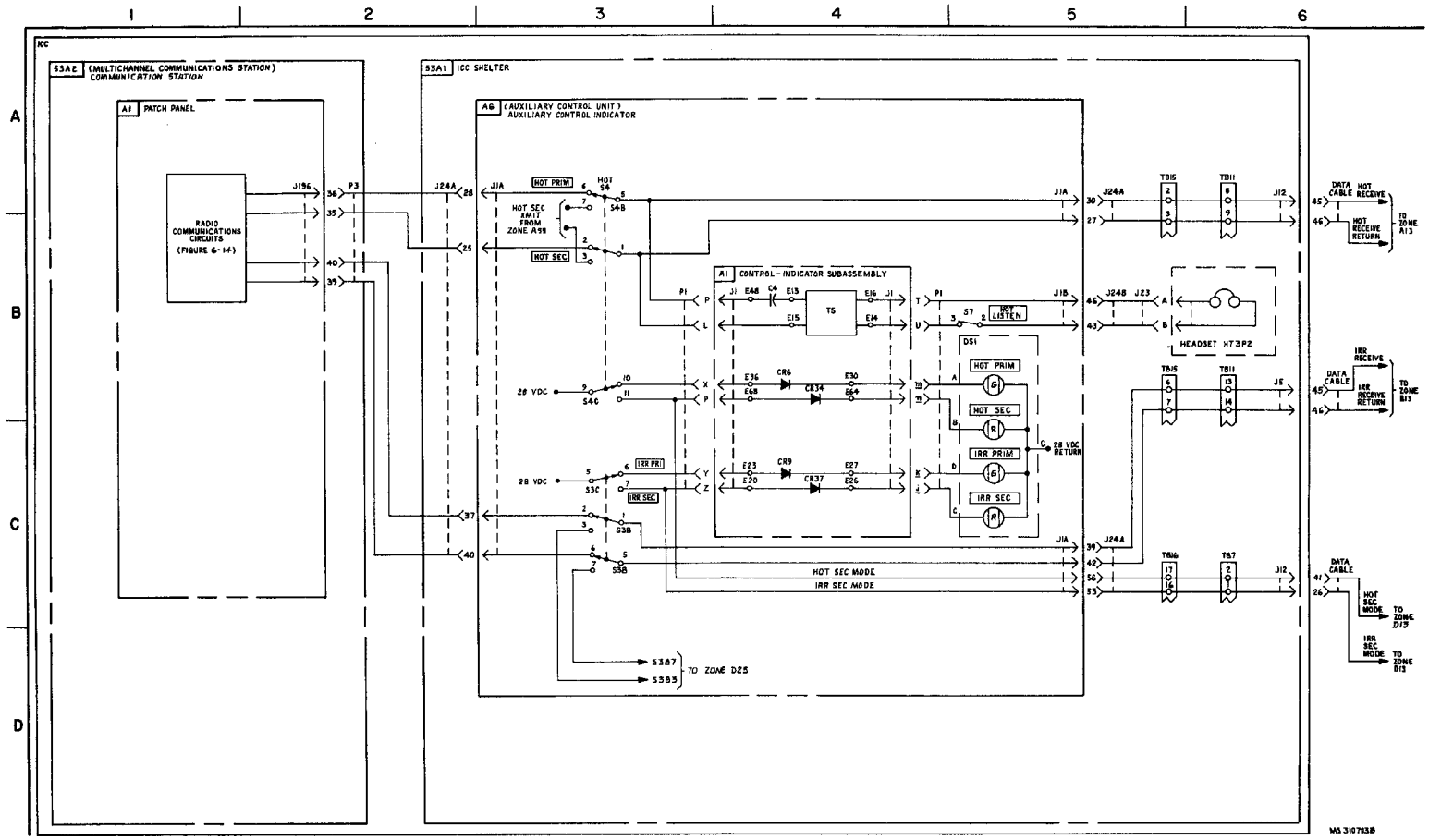


FIGURE 3-41. RADIO COMMUNICATIONS- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 18) (US ARMY)

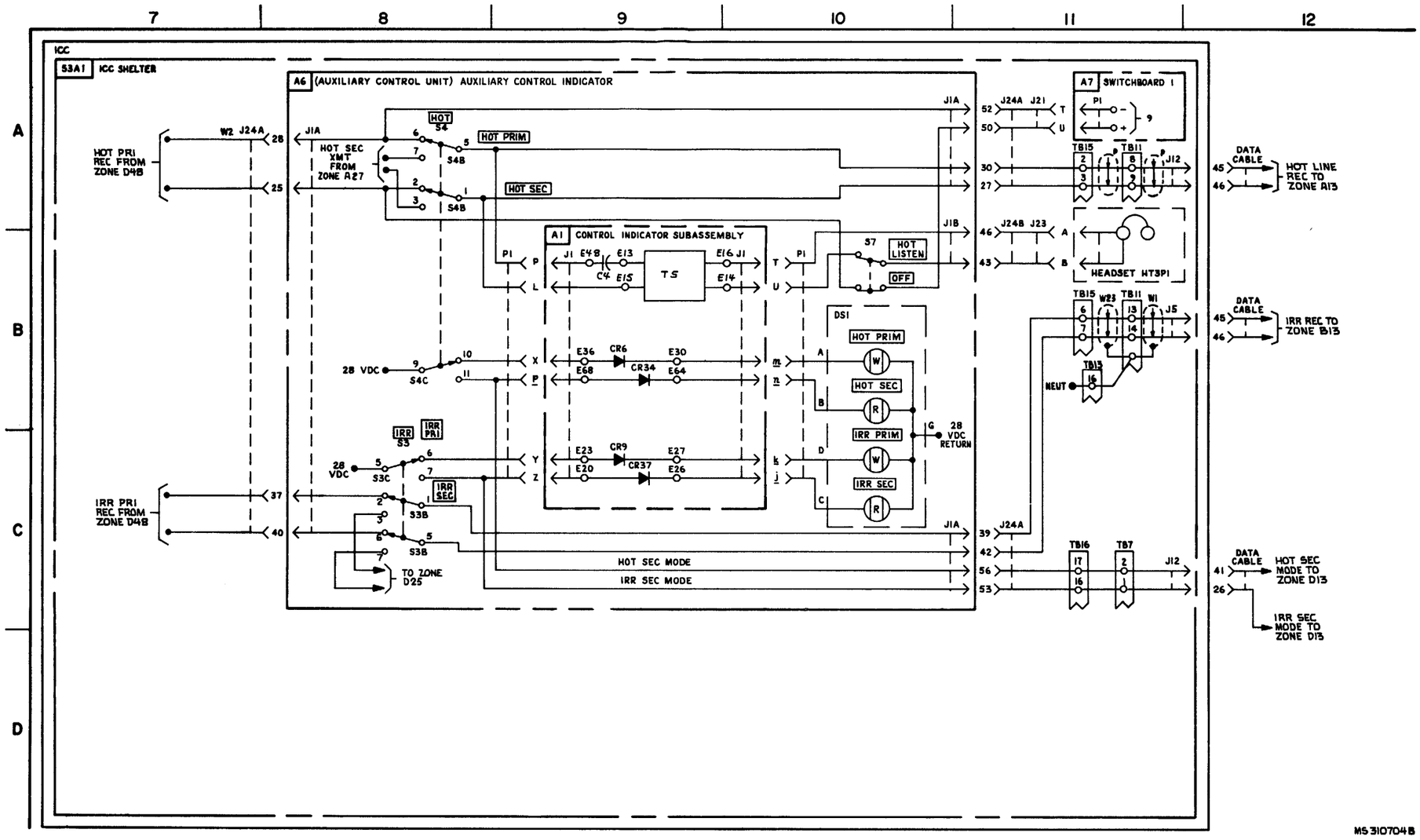


FIGURE 3-41. RADIO COMMUNICATIONS - SYTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 18). (USMC)

3-251/3-252 blank

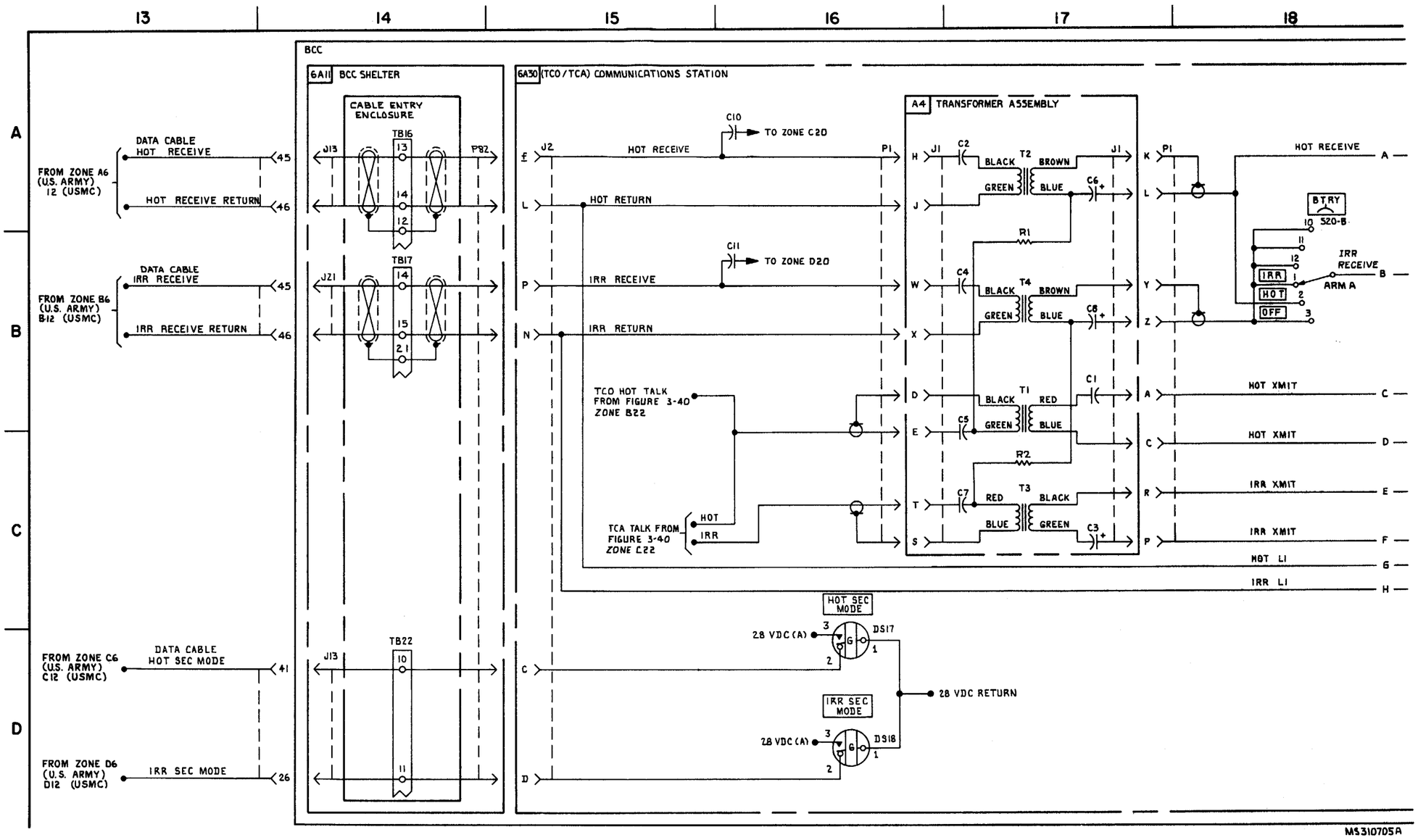


FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 18).

3-253/3-254 blank

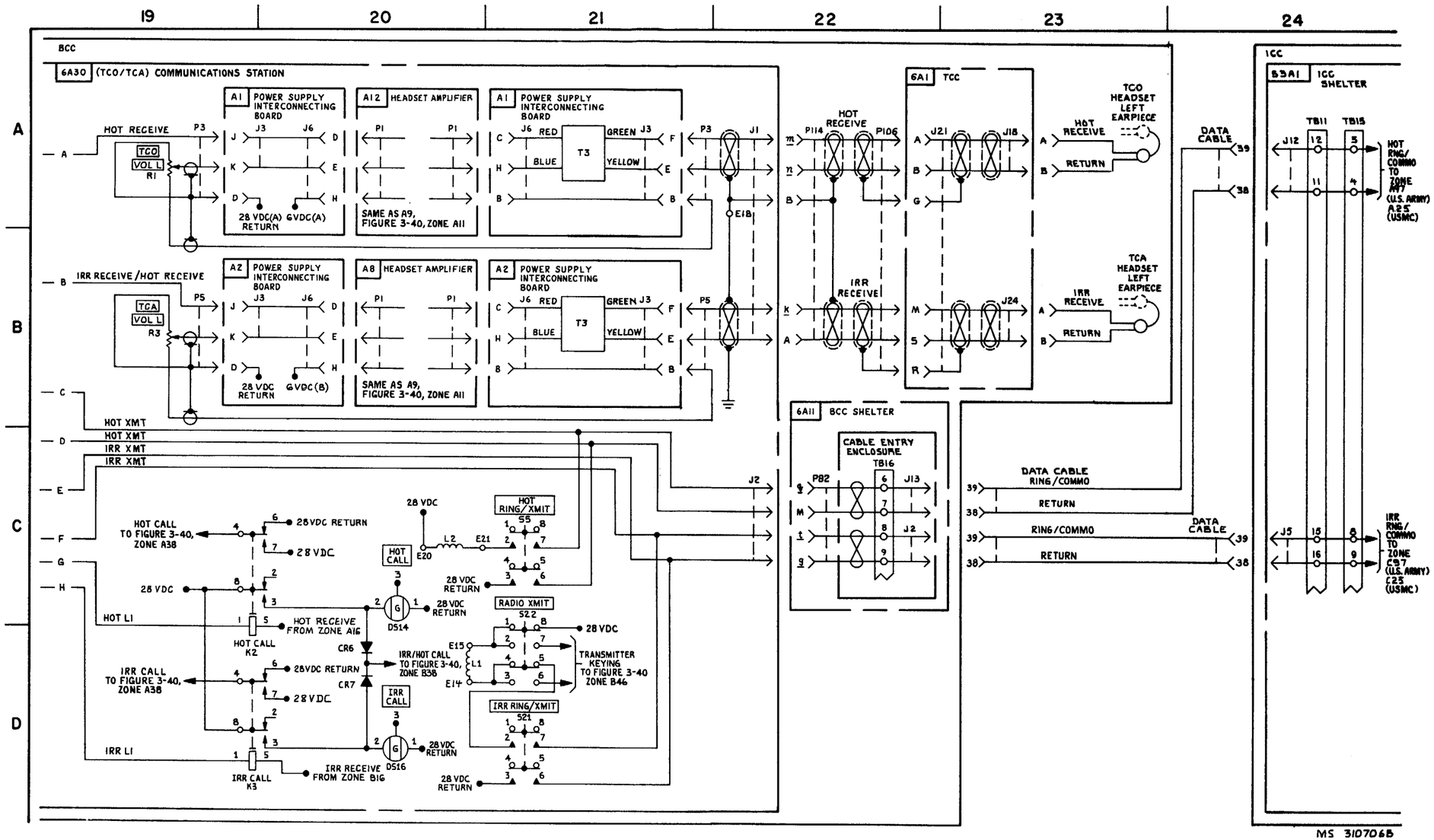


FIGURE 3-41. RADIO COMMUNICATIONS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF18).

3-255 3-256 blank

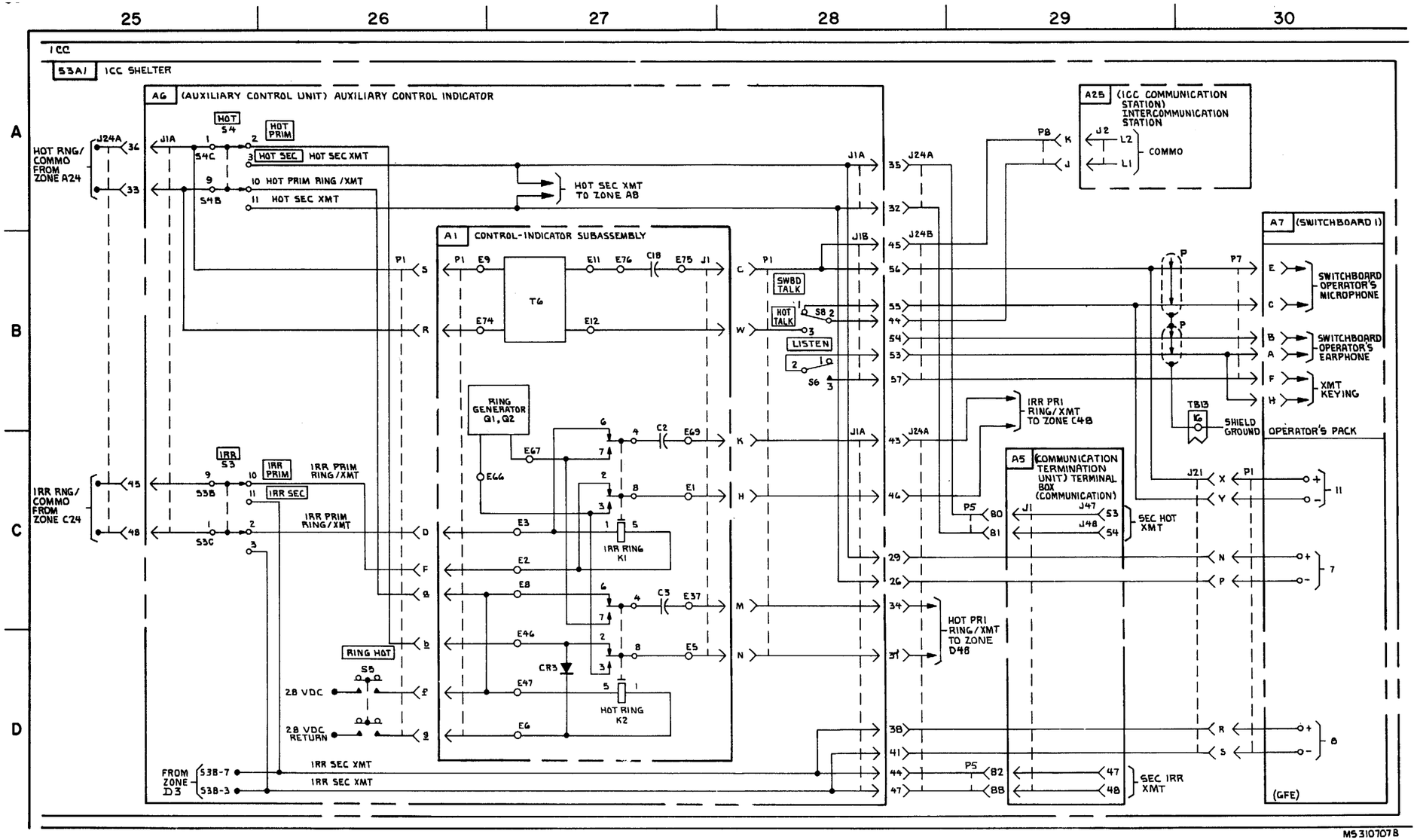


FIGURE 3-41. RADIO COMMUNICATIONS -SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 18) (USMC).

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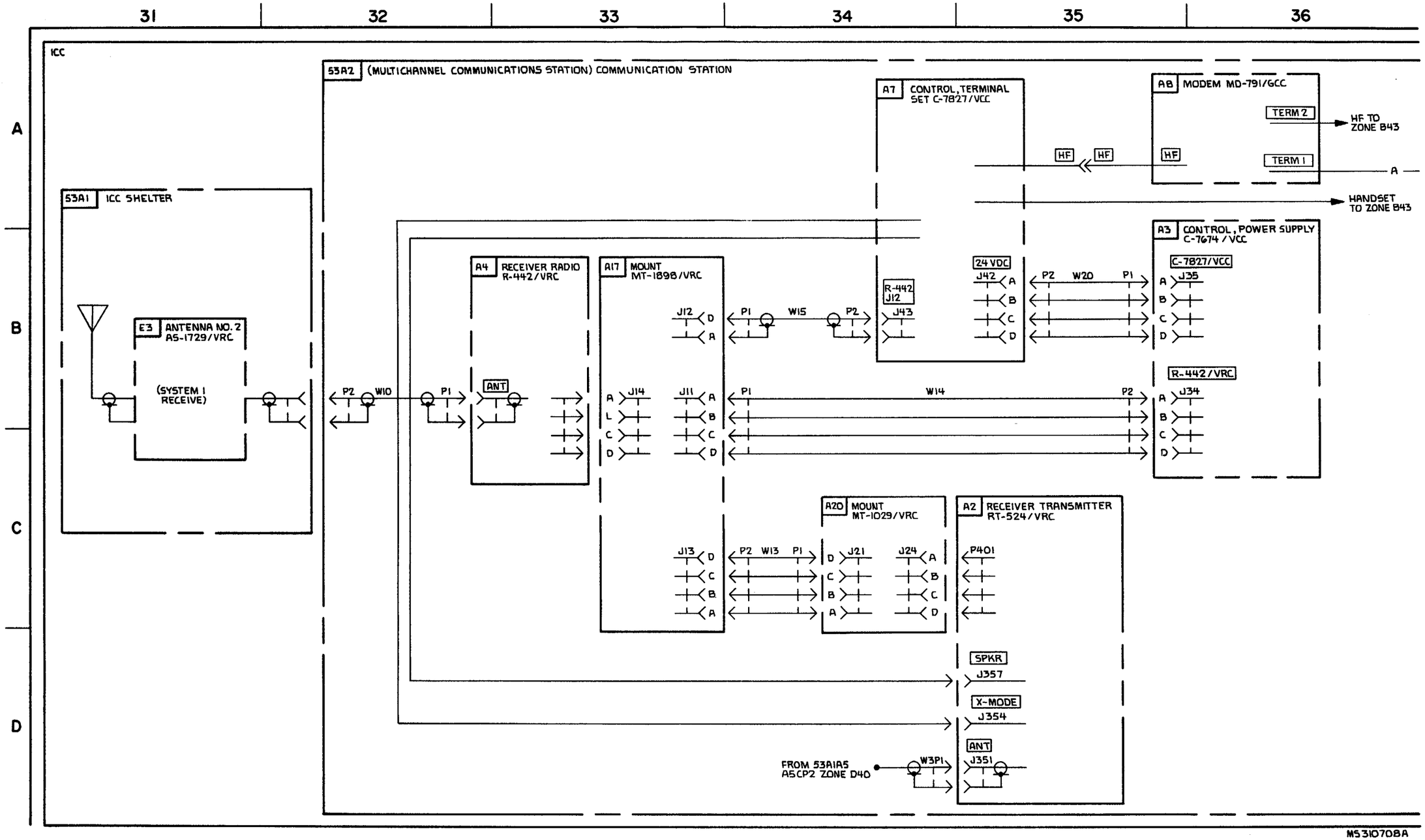

FIGURE 3-41. RADIO COMMUNICATIONS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 18) (USMC).

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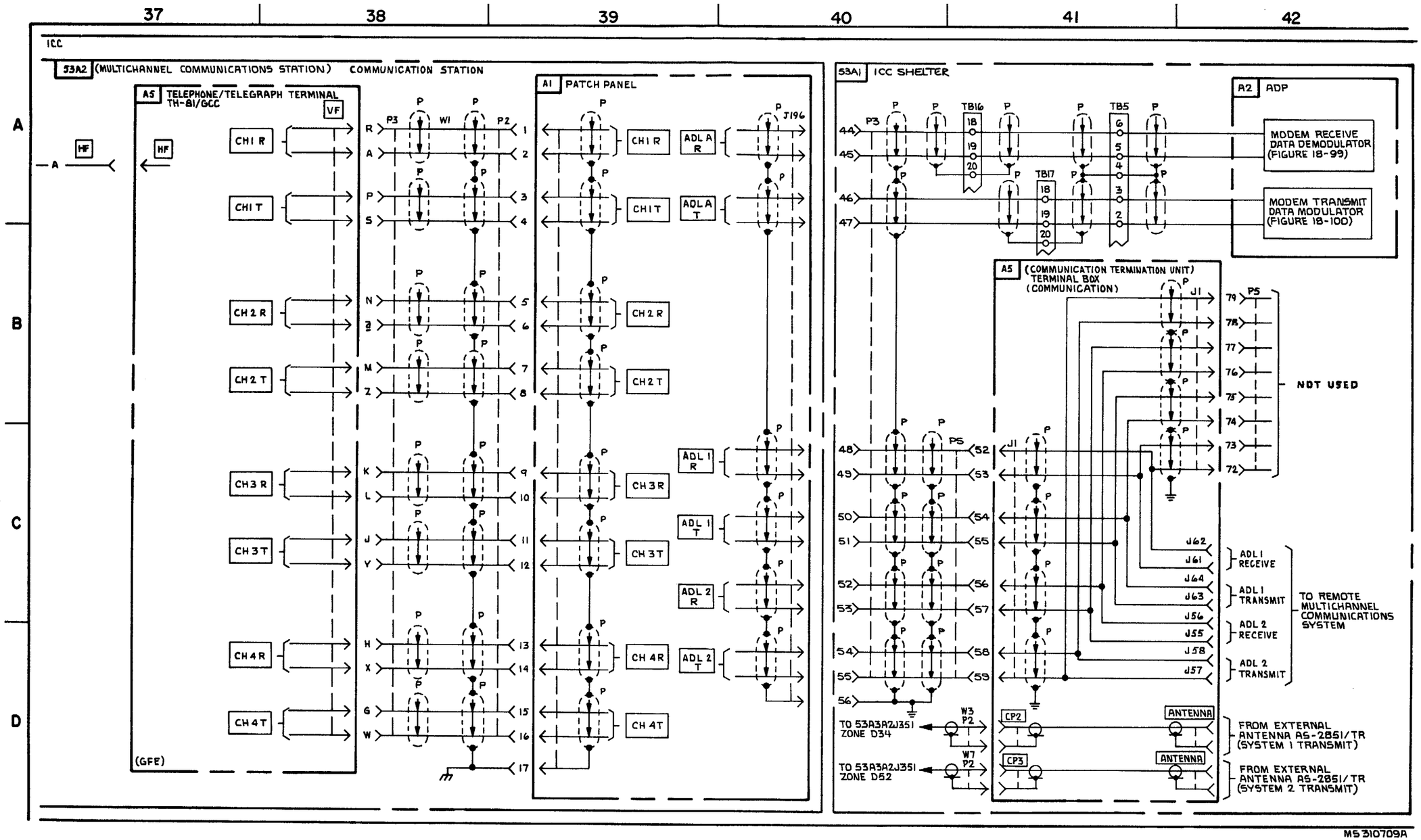

FIGURE 3-41. RADIO COMMUNICATIONS -SYSTEM FUNCTIONAL. DIAGRAM (SHEET 7 OF 18) (USMC)

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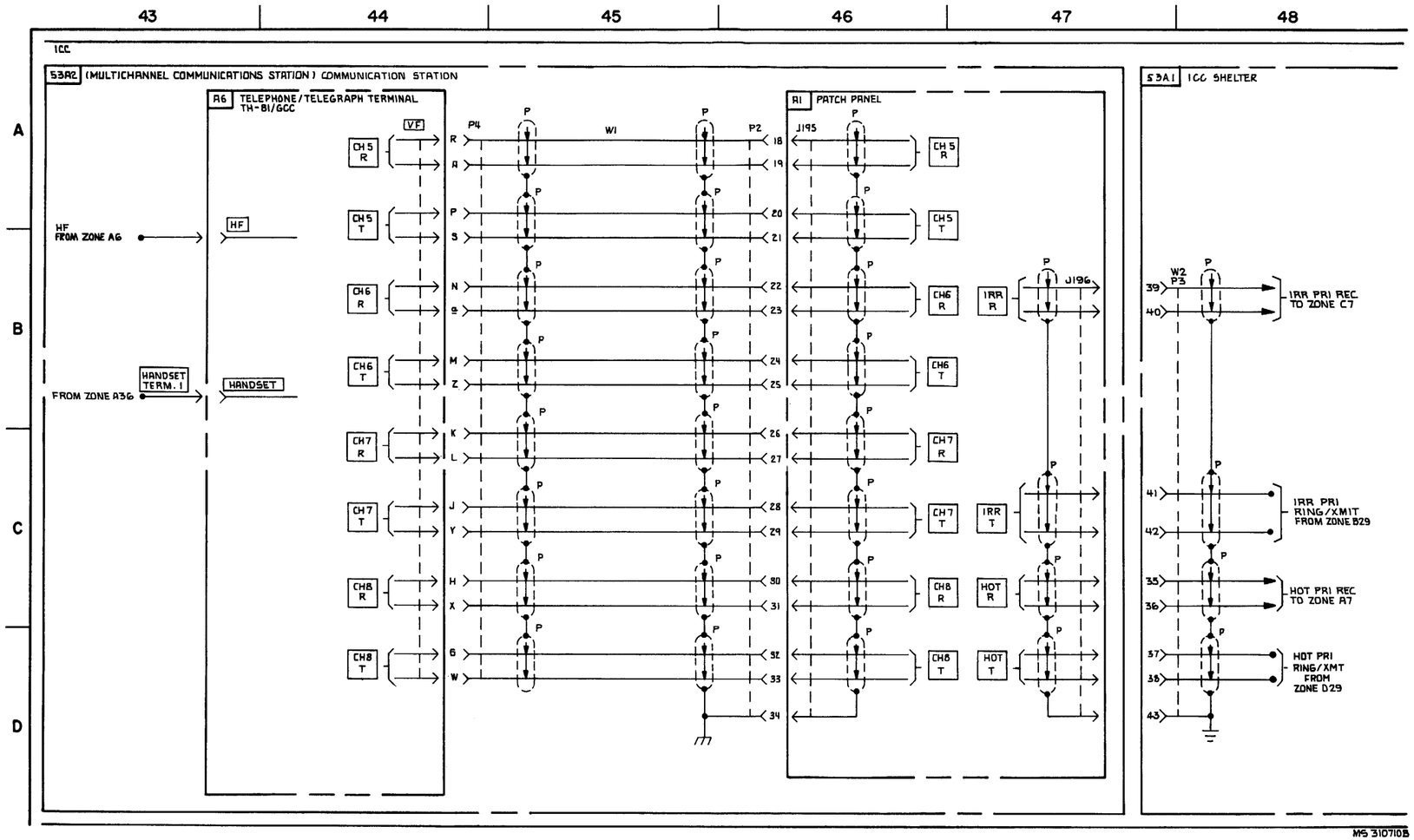

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 18) (USMC)

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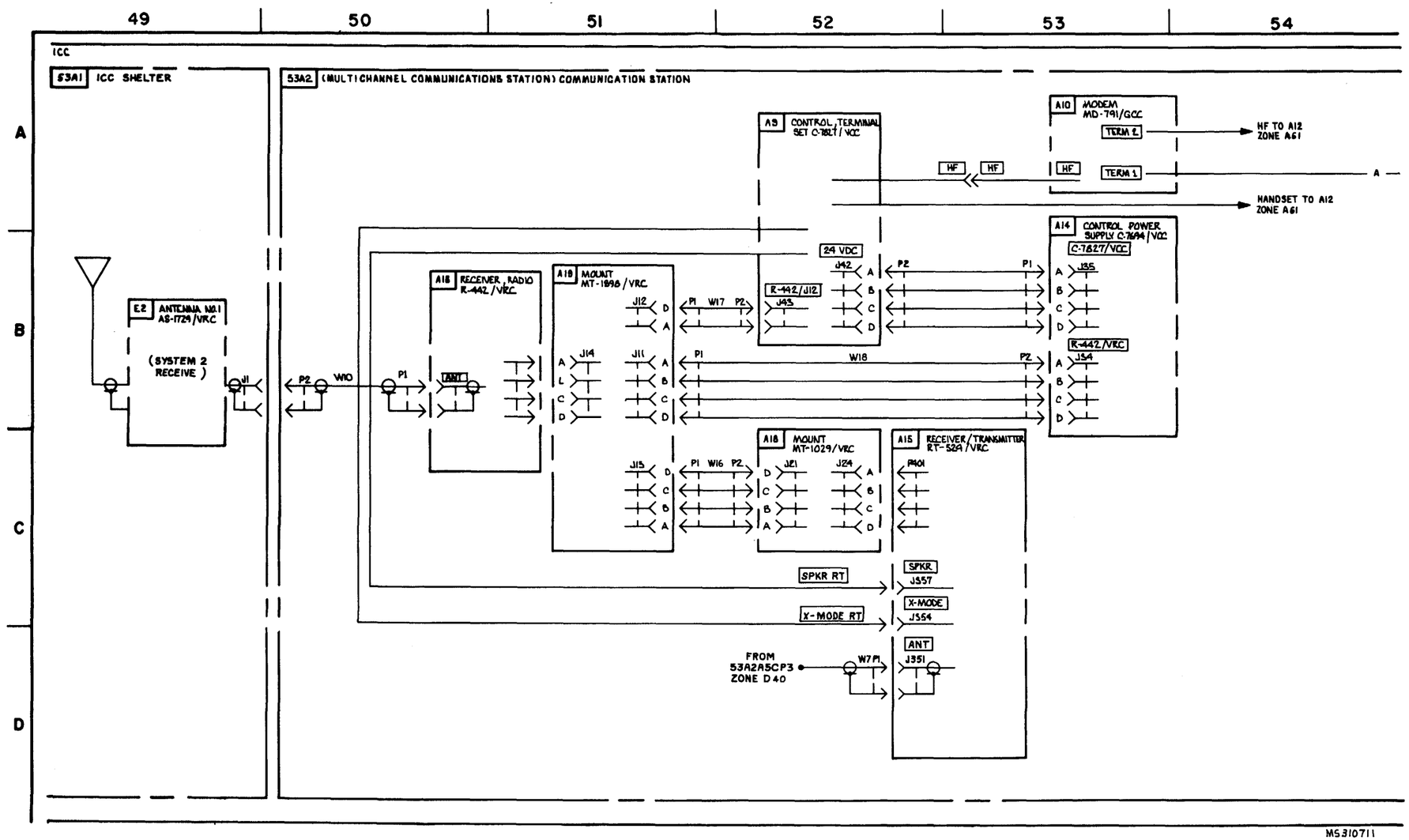

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTM FUNCTIONAL DIAGRAM (SHEET 9 OF 18) (USMC).

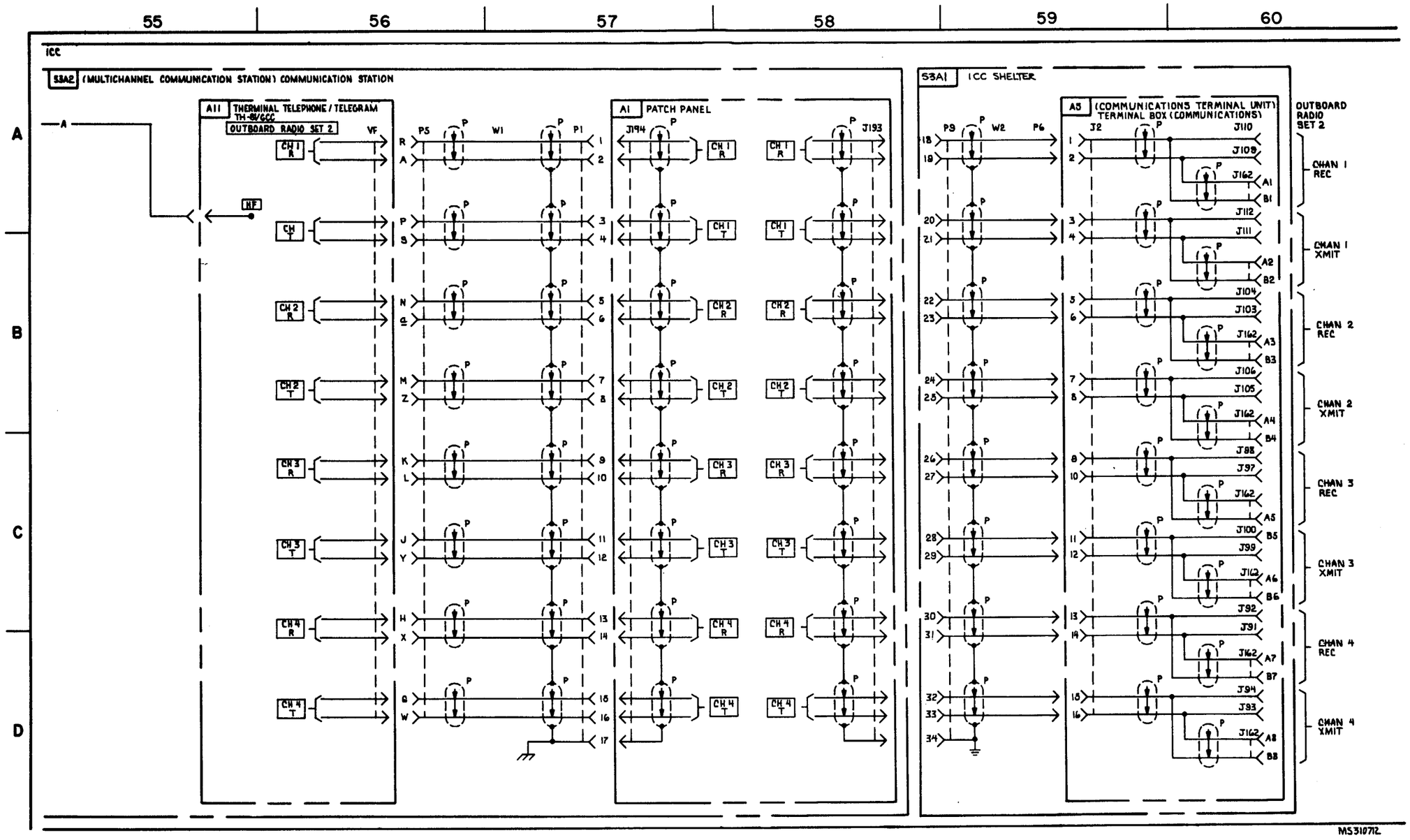

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 10 OF 18) (USMC).

3-267/3-268 blank

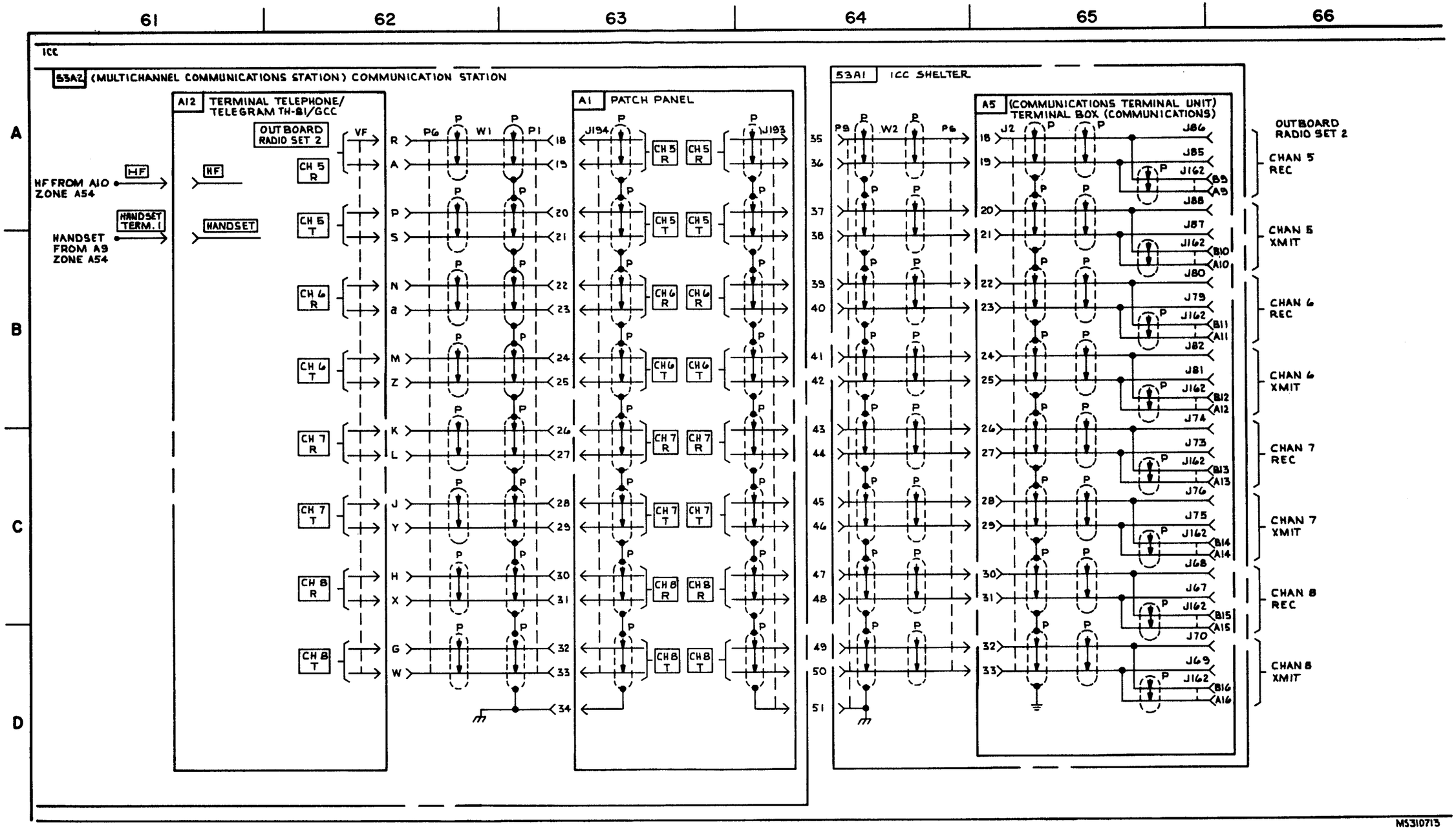

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 11 OF 18).

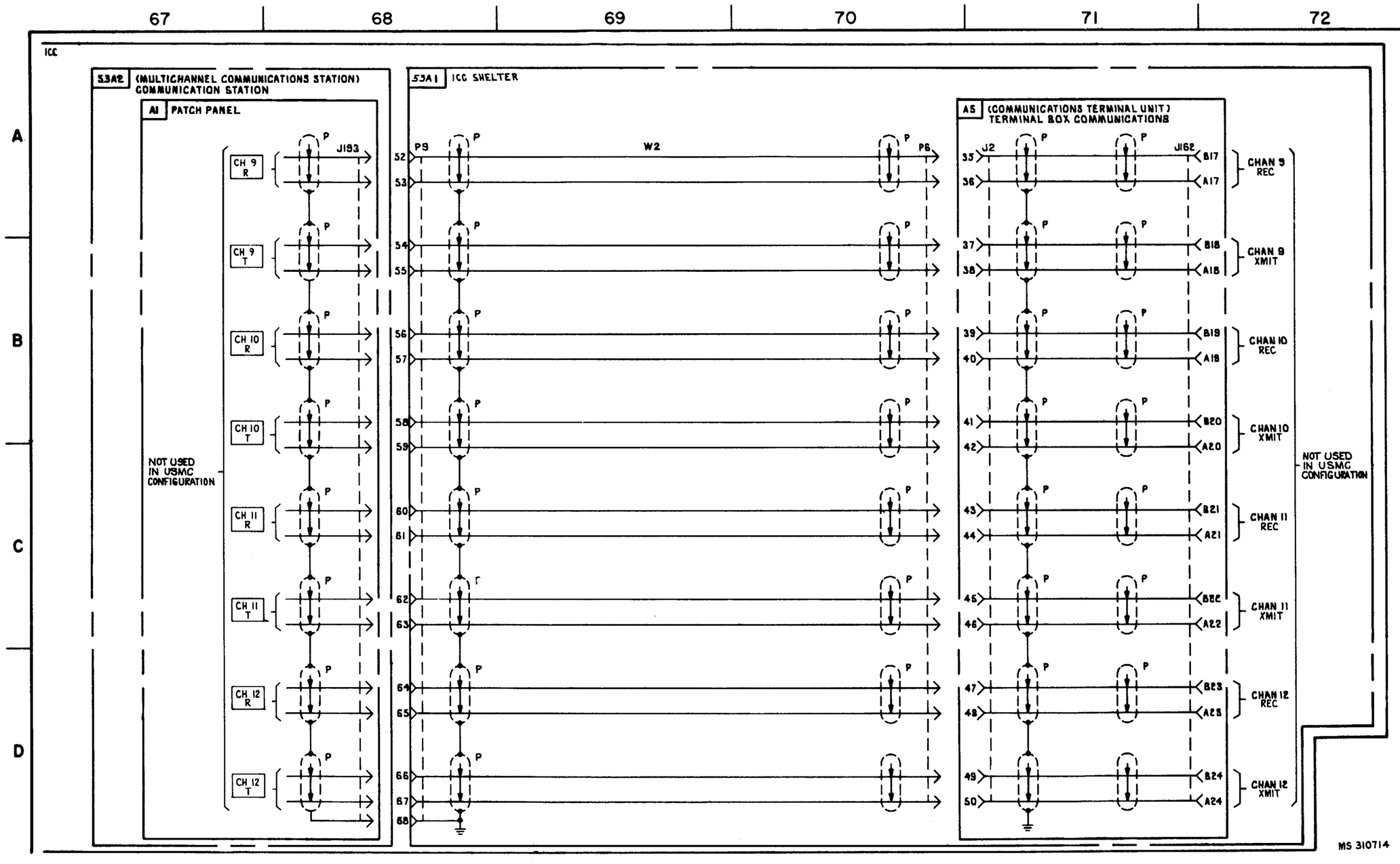

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 12 OF 18) (USMC).

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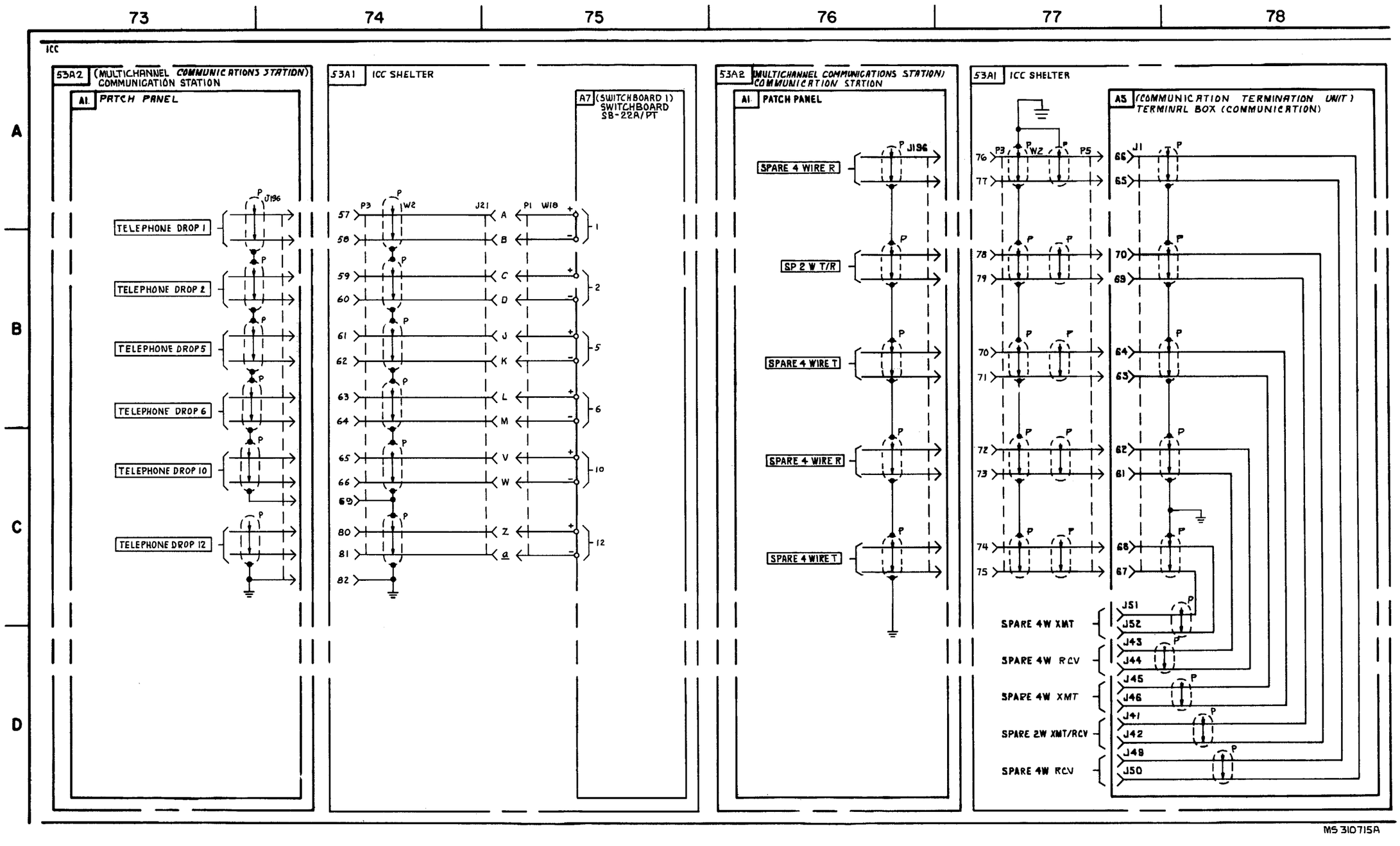

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 13 OF 18) (USMC)

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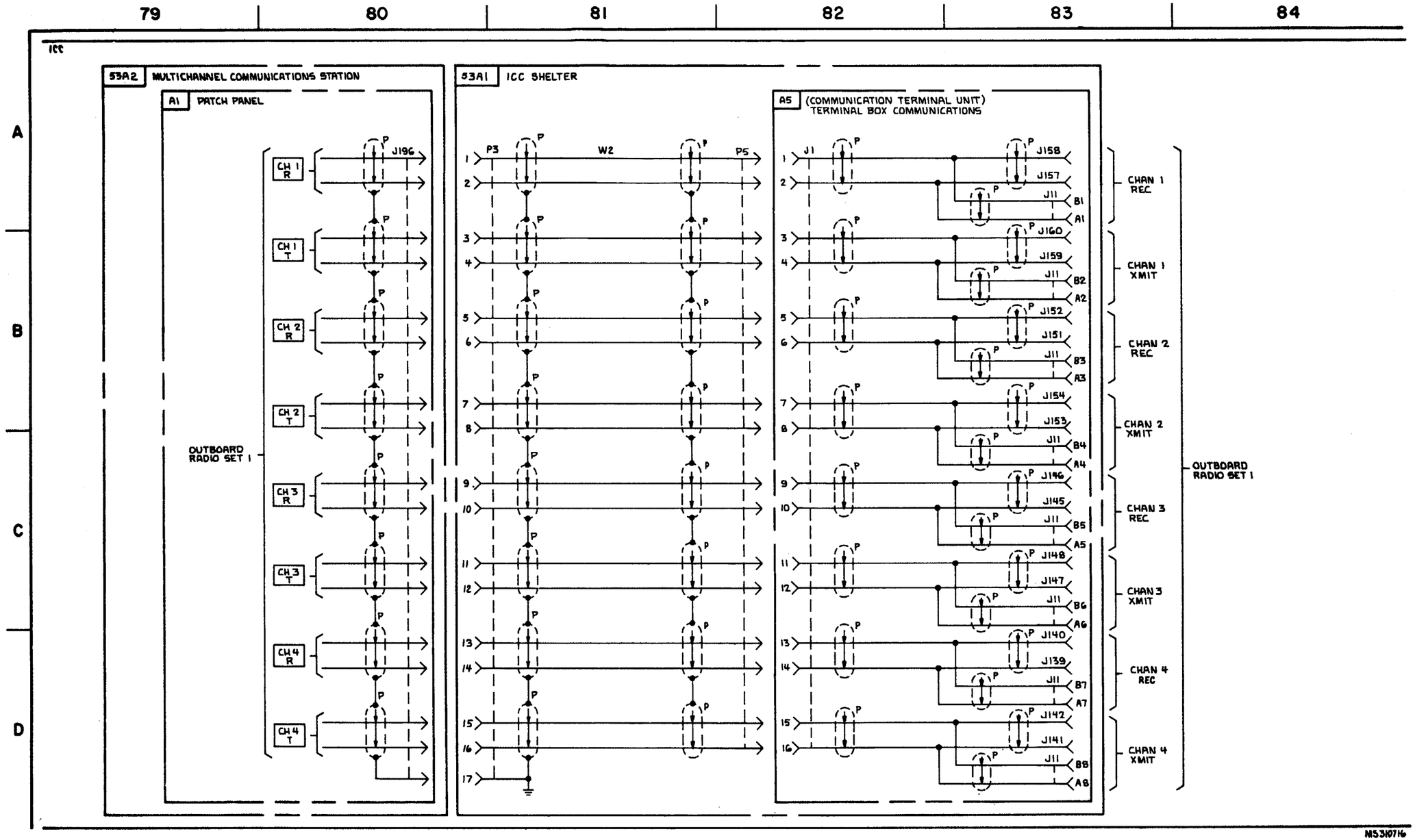

FIGURE 3-41. RADIO COMMUNICATIONS-SYSTEM FUNCTIONAL DIAGRAM

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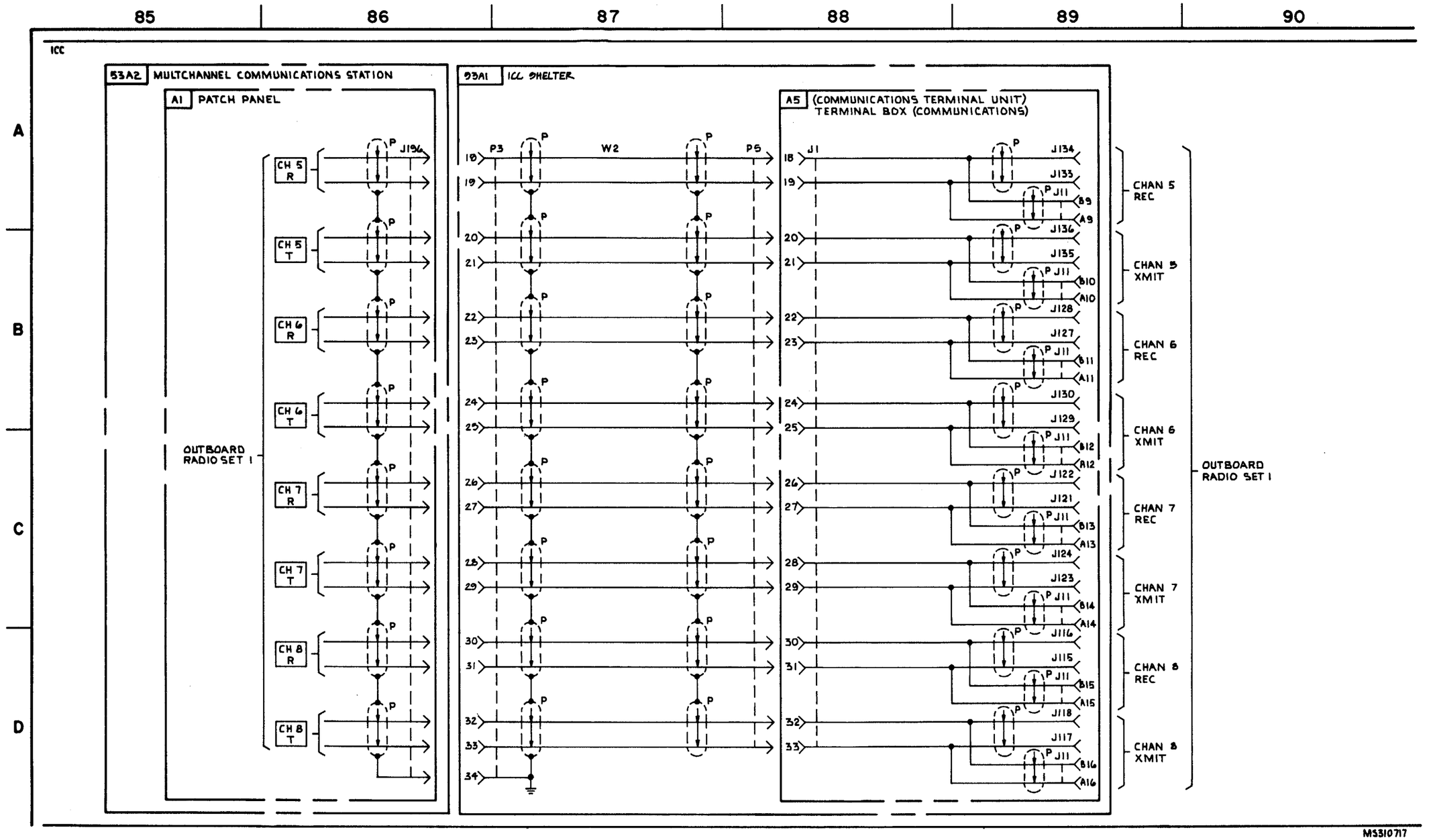

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 15 OF 18) (USMC).

3-277/3-278 blank

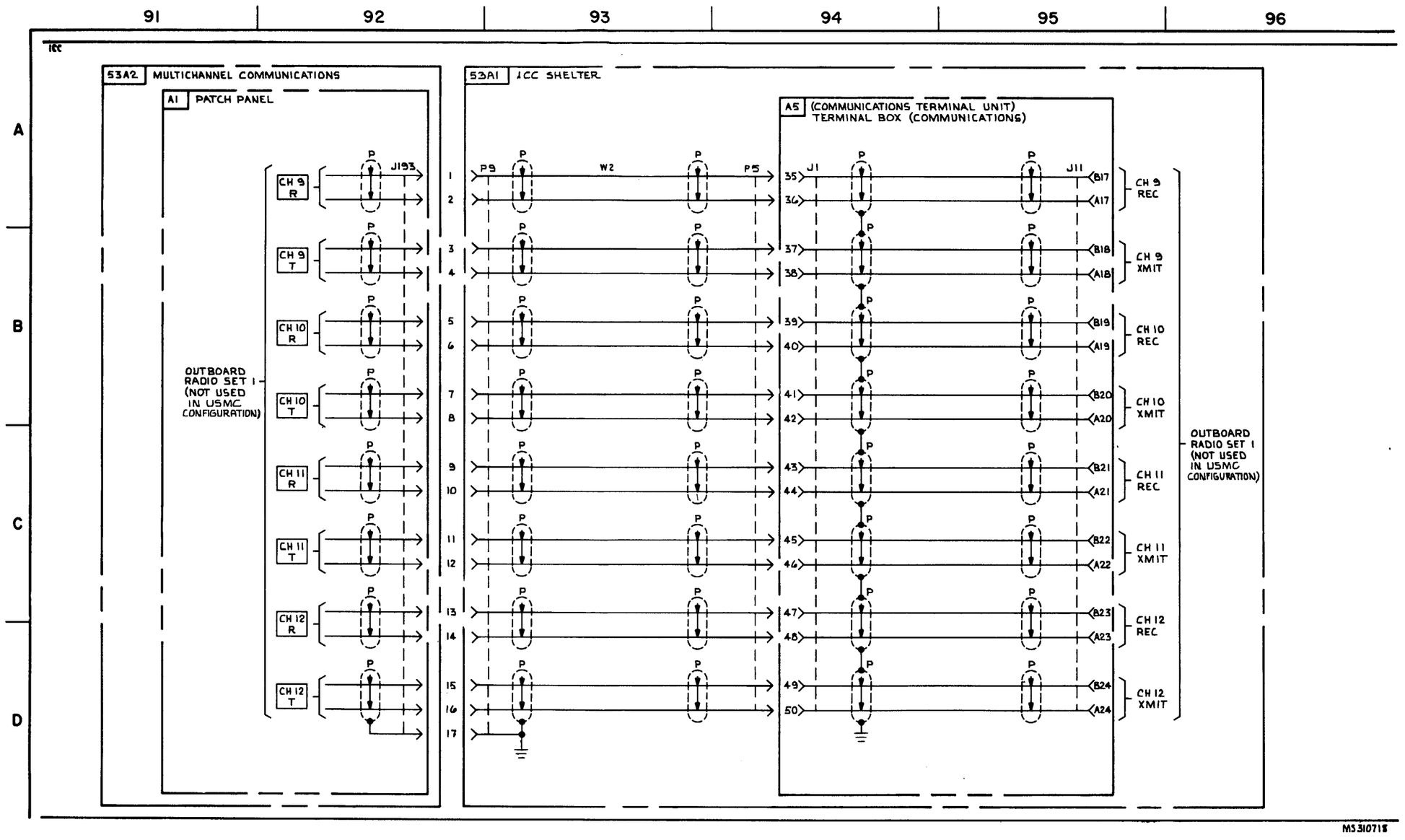

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 16 OF 18) (USMC.).

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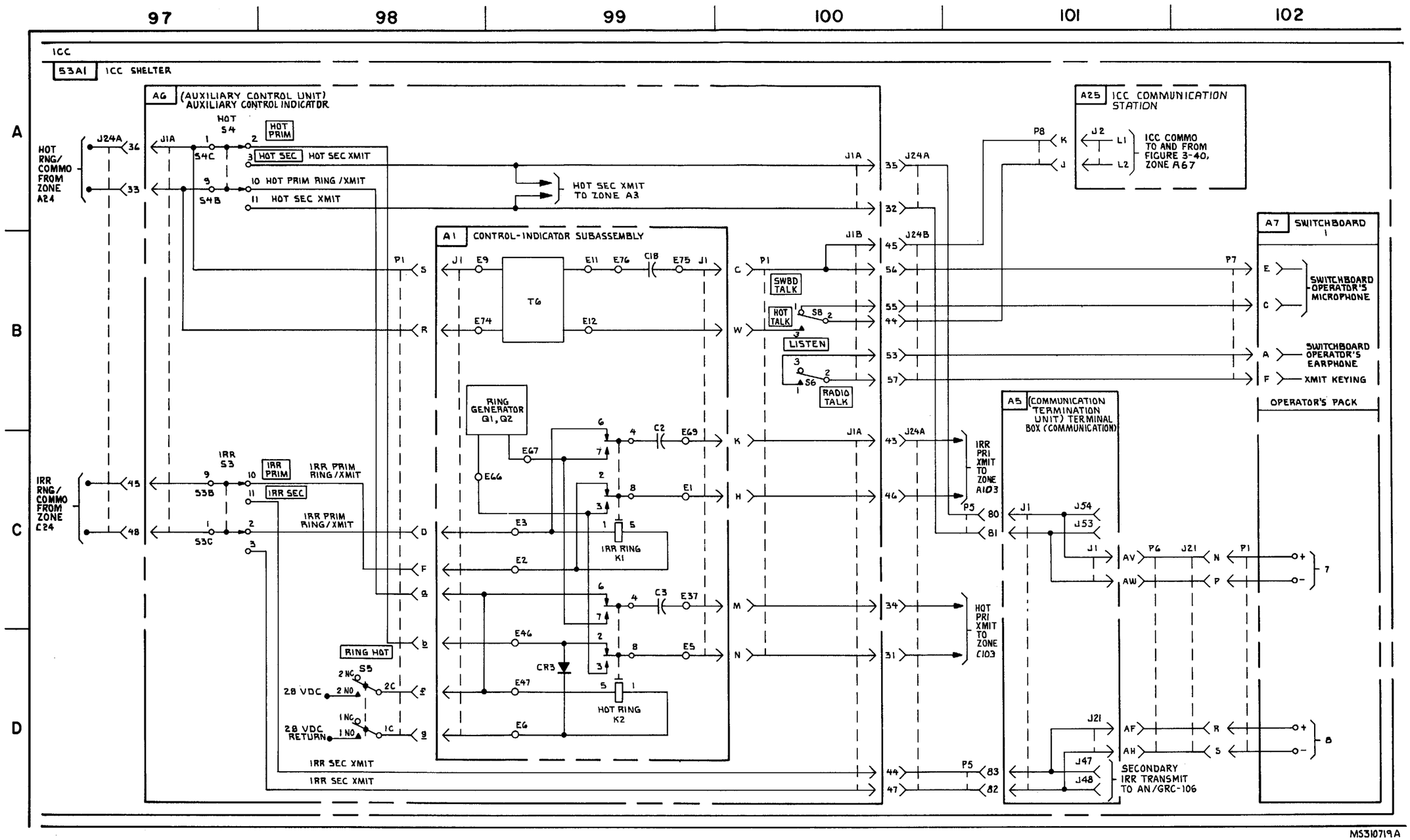

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 17 OF 18) (U.S. ARMY).

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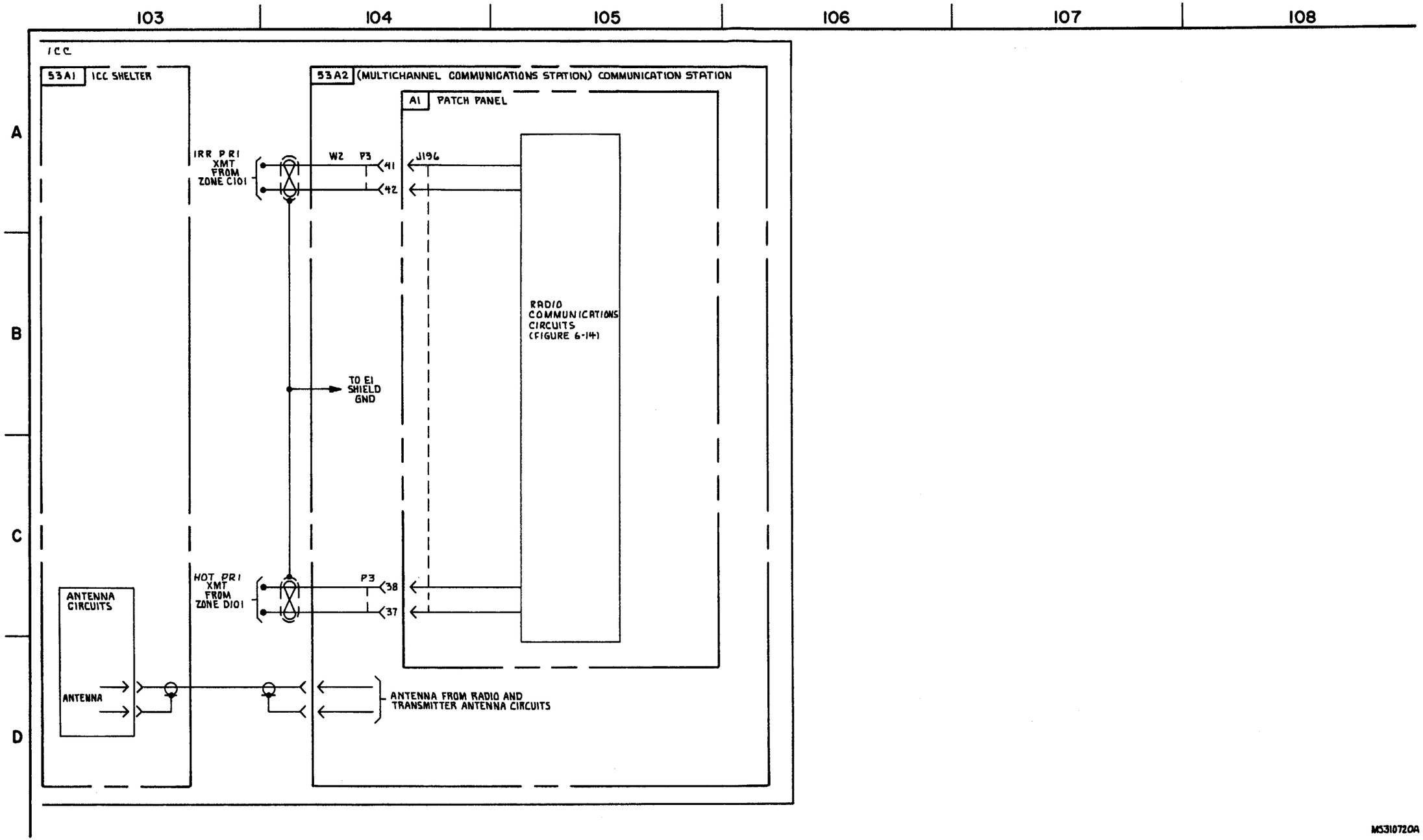

FIGURE 3-41. RADIO COMMUNICATIONS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 18 OF 18) (U.S. ARMY).

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CHAPTER 4. CABLE IDENTIFICATION AND POWER AND GROUND DISTRIBUTION FUNCTIONAL DIAGRAMS

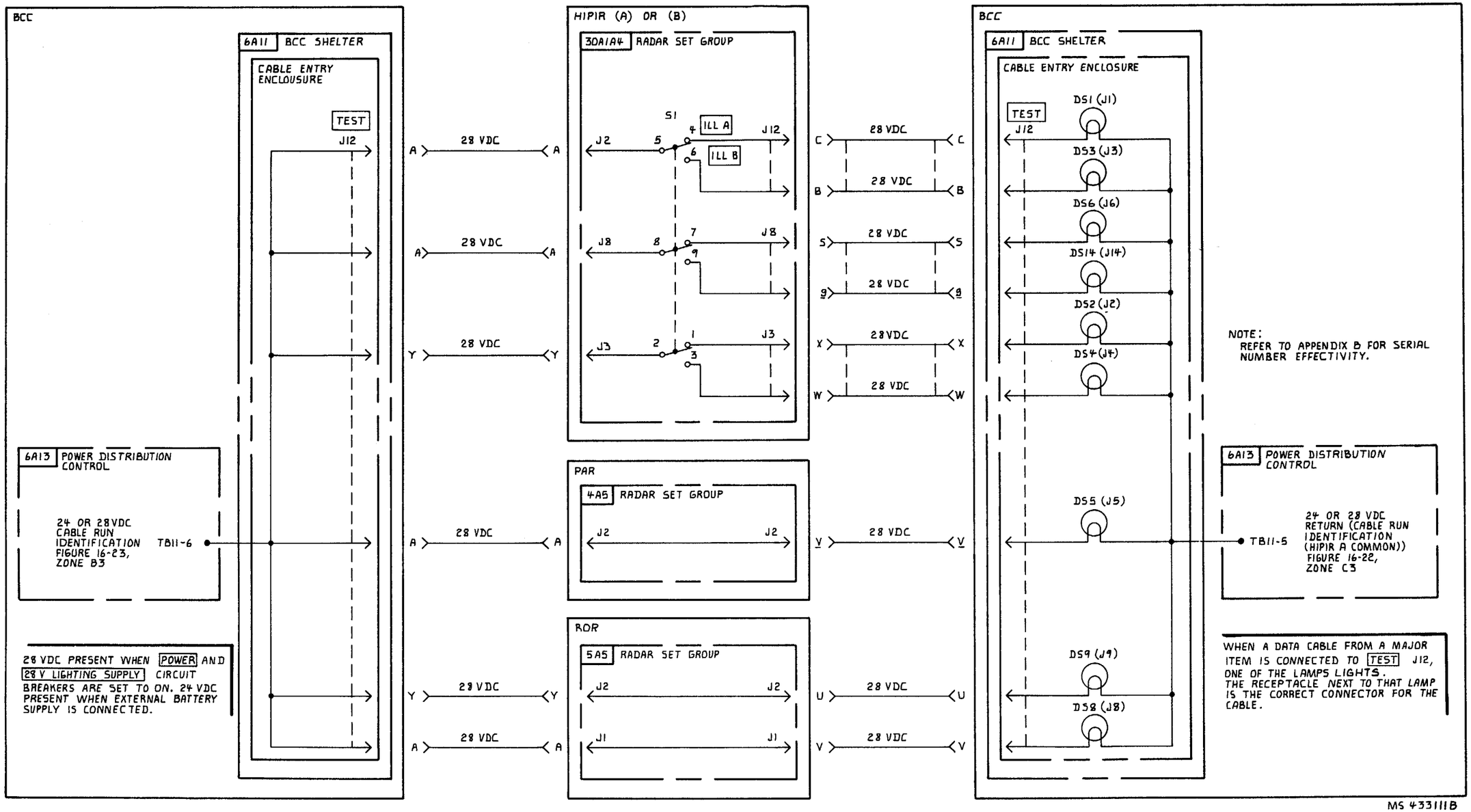


*FIGURE 4-1. CABLE IDENTIFICATION AT THE BCC *(T) (SEE NOTE) - SYSTEM FUNCTIDNAL DIAGRAM.*

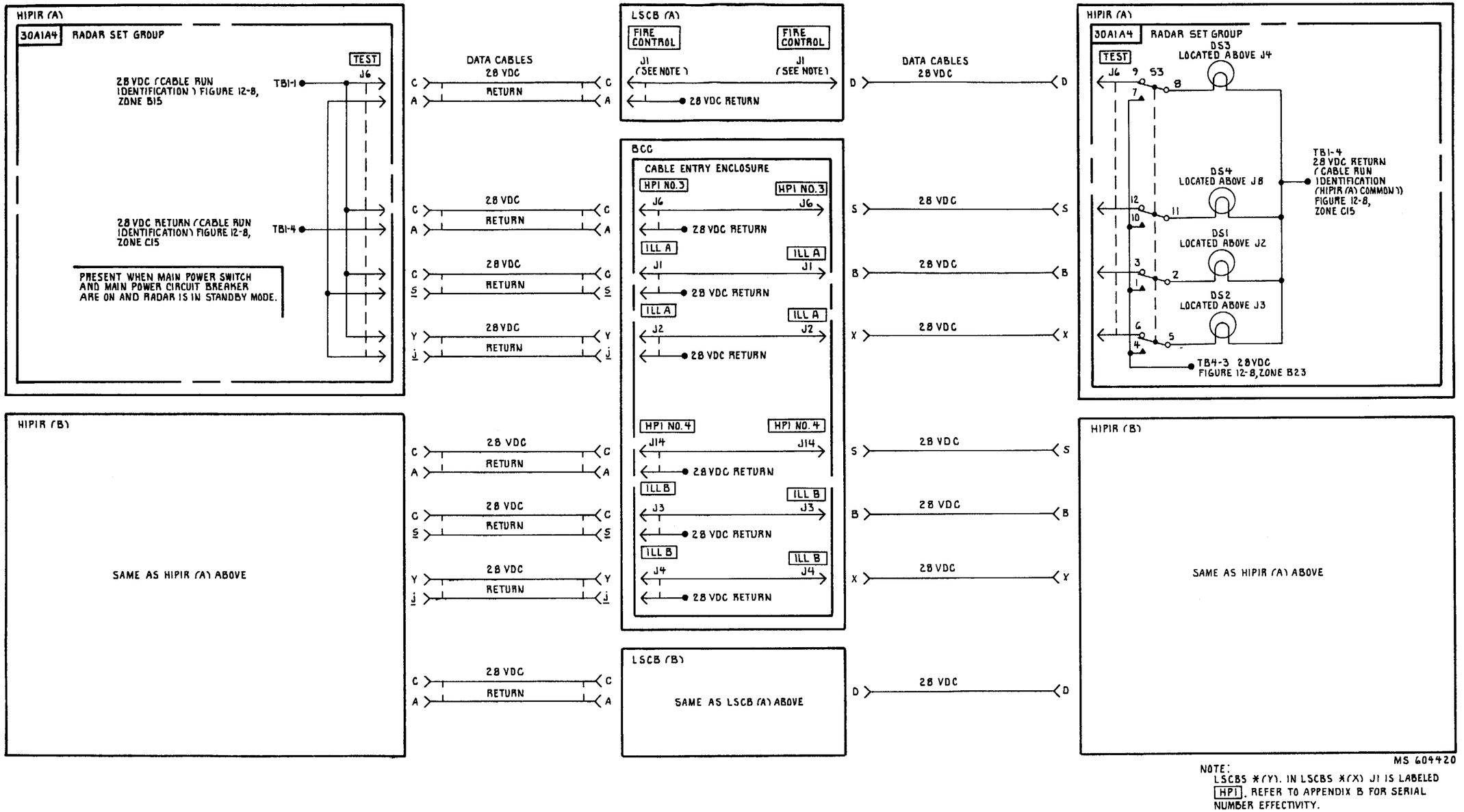


*FIGURE 4-2. CABLE IDENTIFICATION AT THE RADARS * (Y) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).*

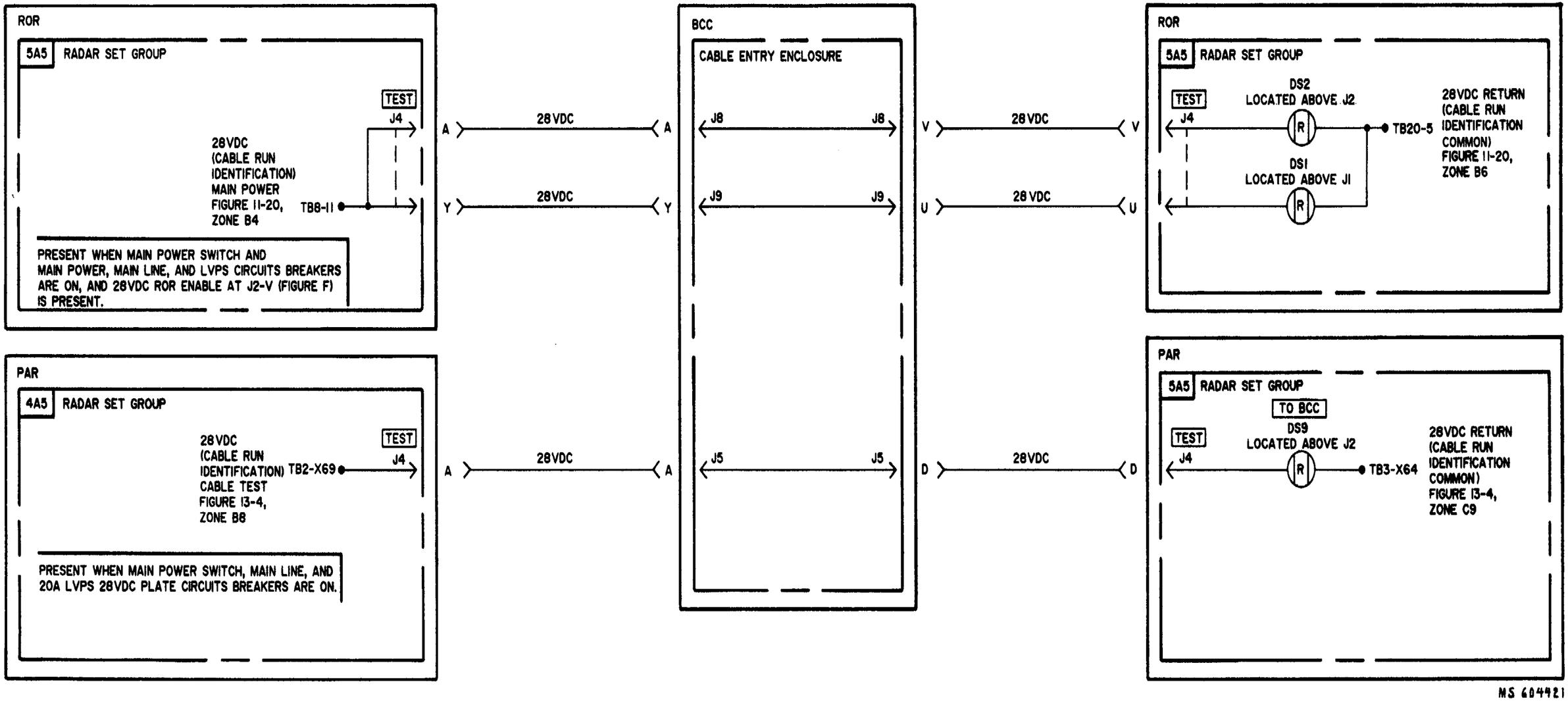


FIGURE 4-2. CABLE IDENTIFICATION AT THE RADARS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2)

4-2.1 /4-2.2 blank

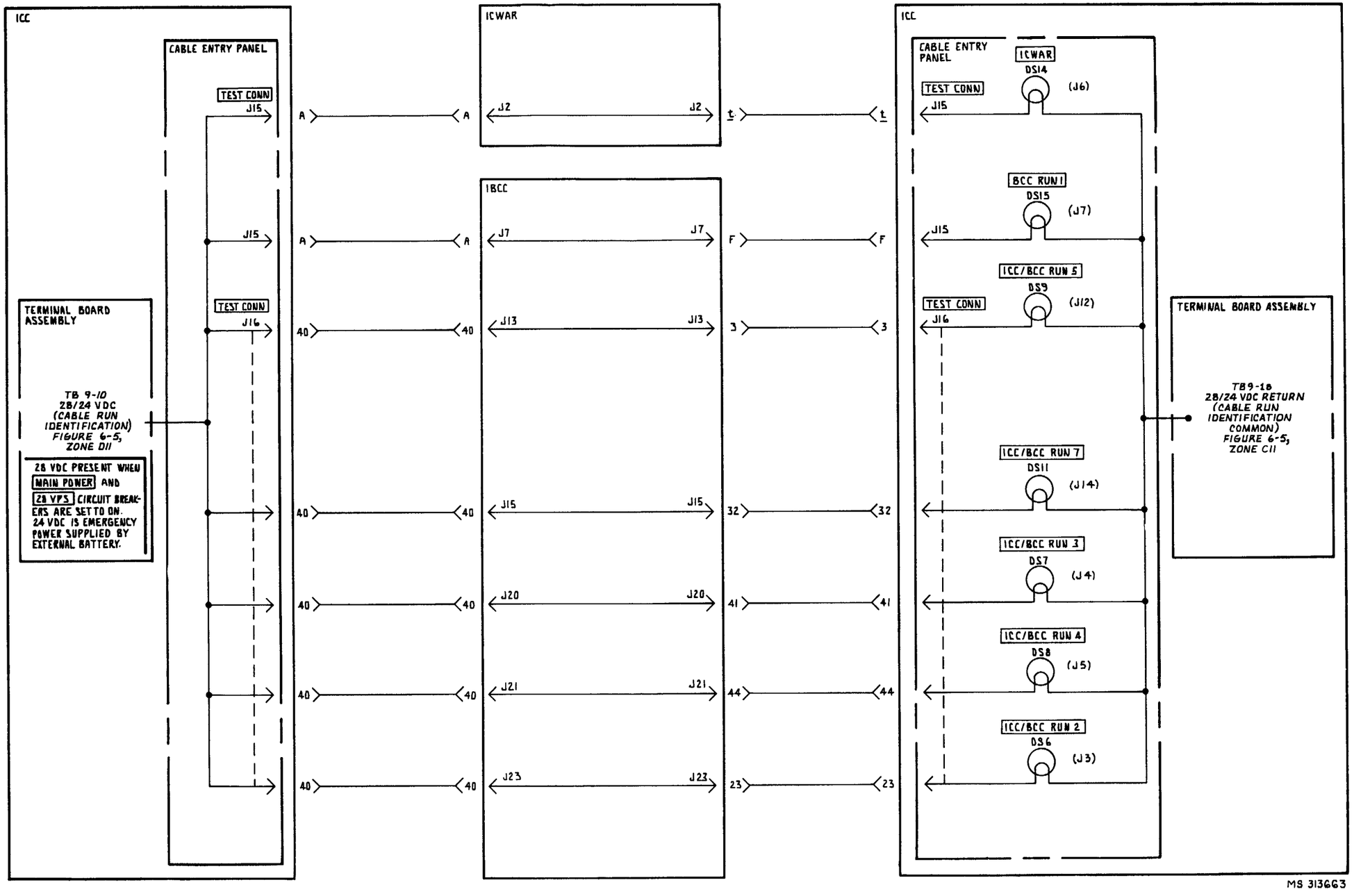


FIGURE 4-3. CABLE IDENTIFICATION AT THE ICC-SYSTEM FUNCTIONAL DIAGRAM

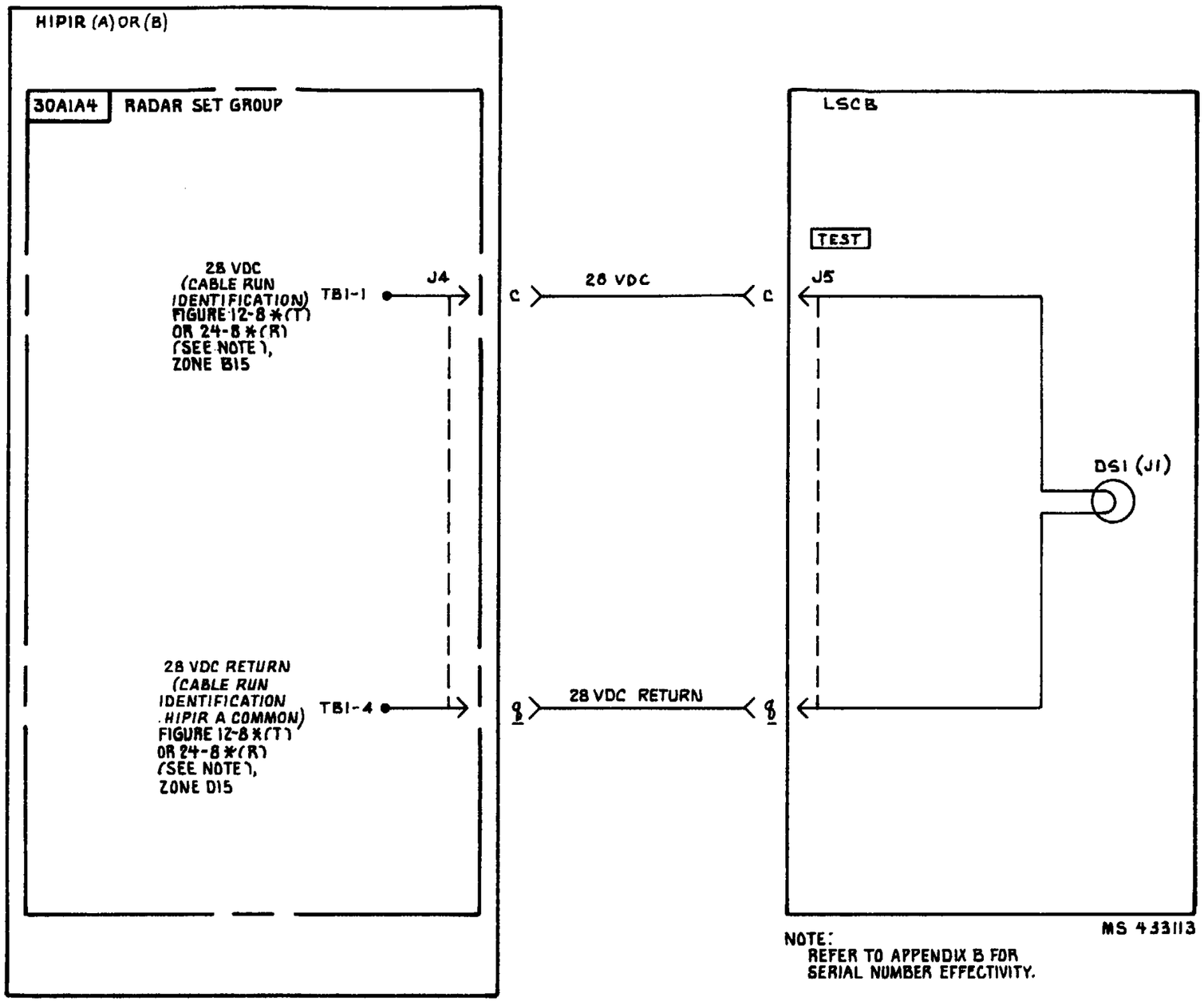


FIGURE 4-4. CABLE IDENTIFICATION AT THE LSCB-SYSTEM FUNCTIONAL DIAGRAM.

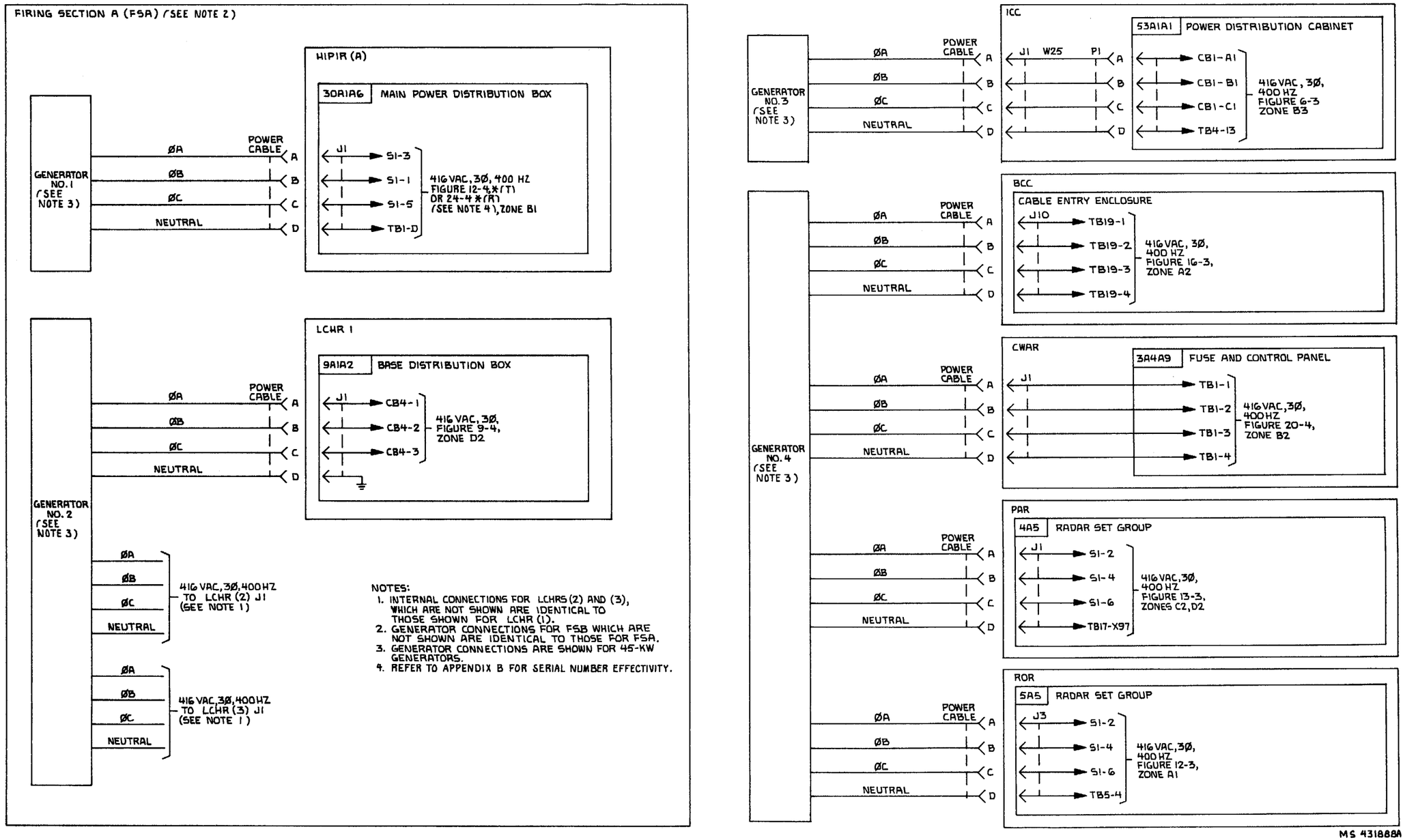
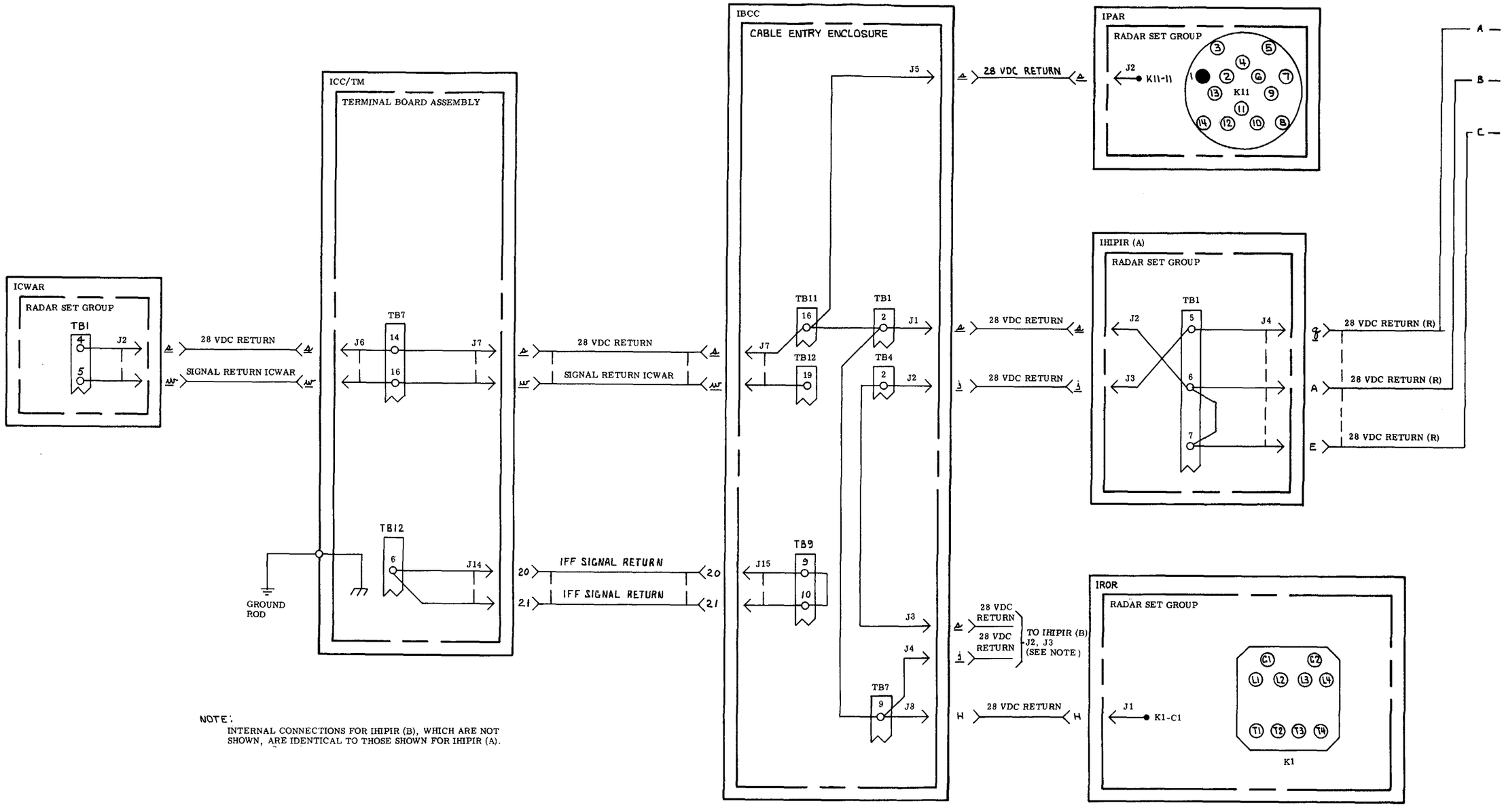


FIGURE 4-5. 416-VAC POWER DISTRIBUTION-SYSTEM FUNCTIONAL DIAGRAM.



NOTE:
INTERNAL CONNECTIONS FOR IHIPIR (B), WHICH ARE NOT SHOWN, ARE IDENTICAL TO THOSE SHOWN FOR IHIPIR (A).

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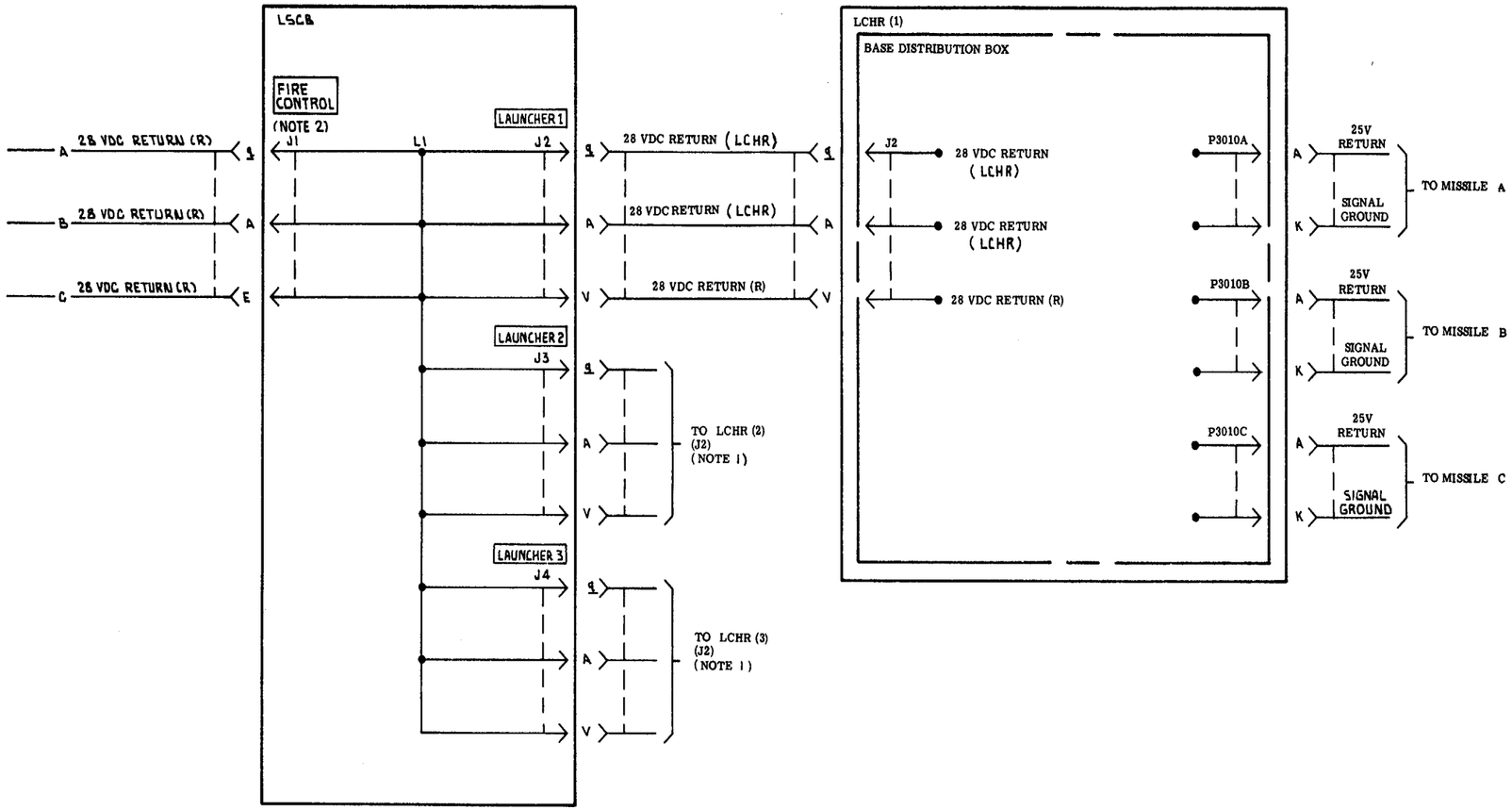
FIGURE 4-6. GROUND DISTRIBUTION-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 2).



NOTES:
1. INTERNAL CONNECTIONS FOR LCHR (2) AND (3), WHICH ARE NOT SHOWN, ARE IDENTICAL TO THOSE SHOWN FOR LCHR (1).
2. LSCBS *(Y). IN LSCBS *(X), J1 IS LABELD HPI REFER TO APPENDIX B FOR SERIAL NUMBER EFFECTIVITY.

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*FIGURE 4-6. GROUND DISTRIBUTION SYSTEM * (Y) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 2).*

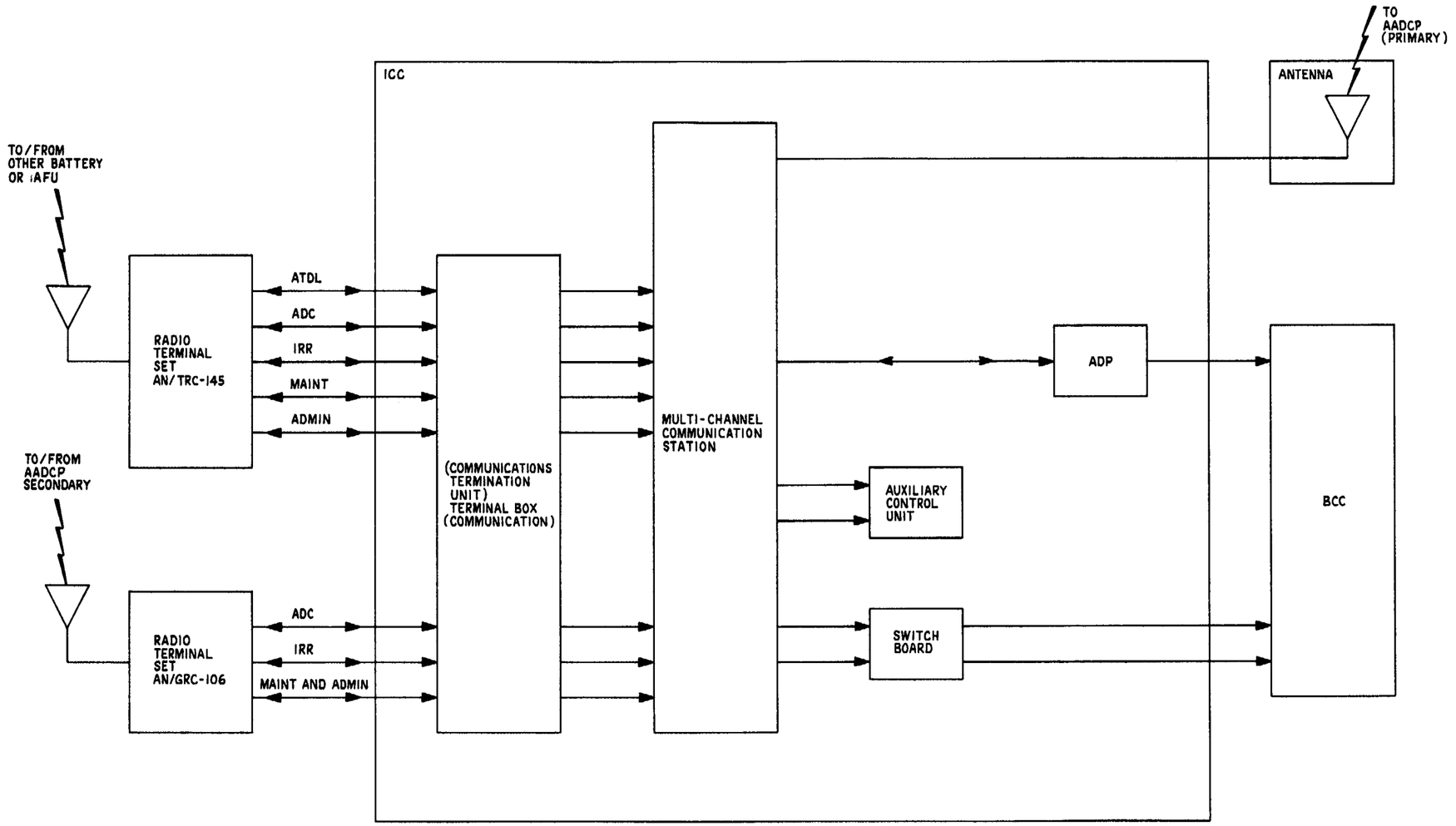

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FIGURE 5-1. AADCP AND IMPROVED HAWK BATTERY INTERFACE - GENERAL BLOCK DIAGRAM

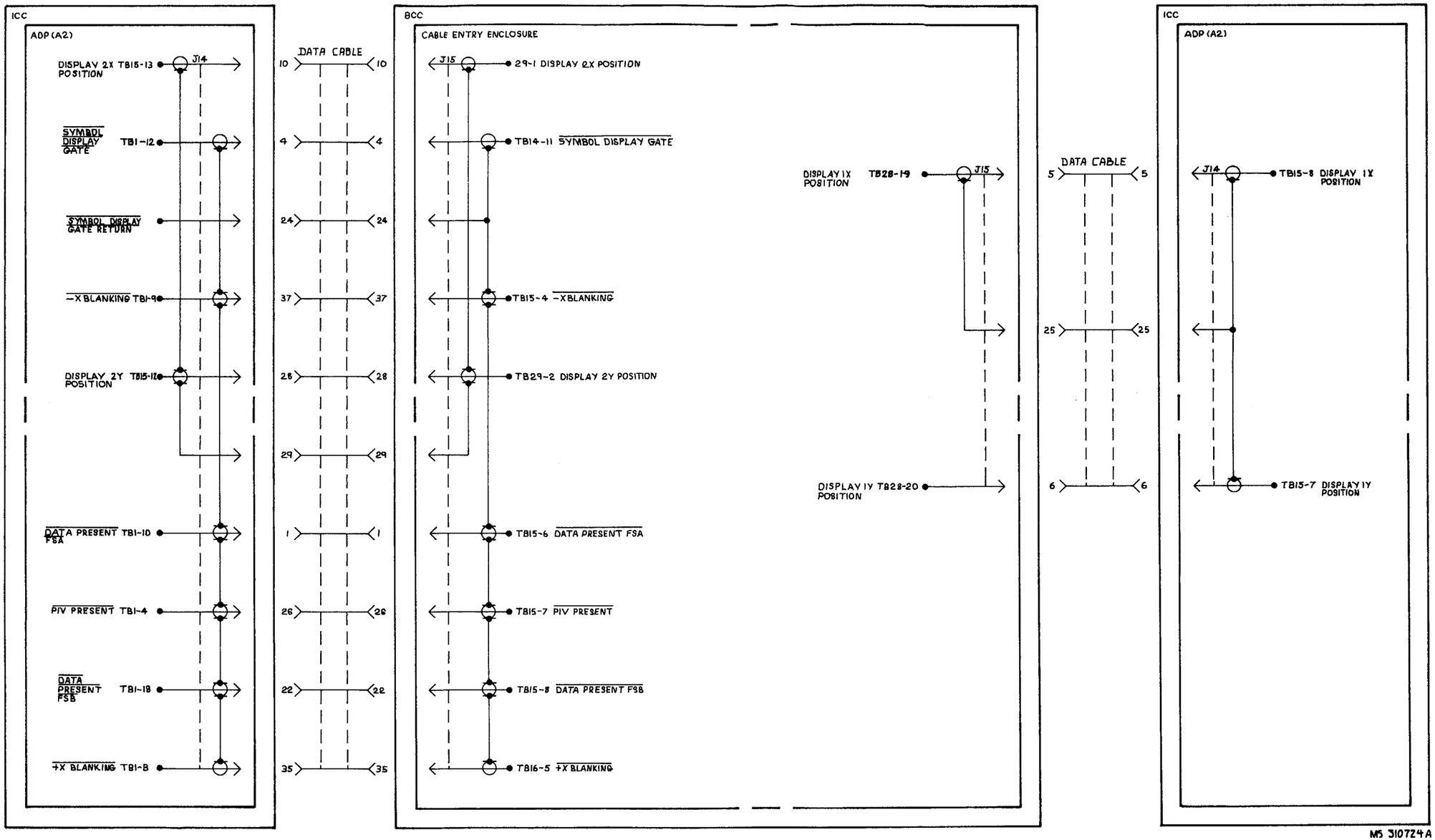


FIGURE 5-2. AADCP AND HAWK SYSTEM INTERFACE-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 3)

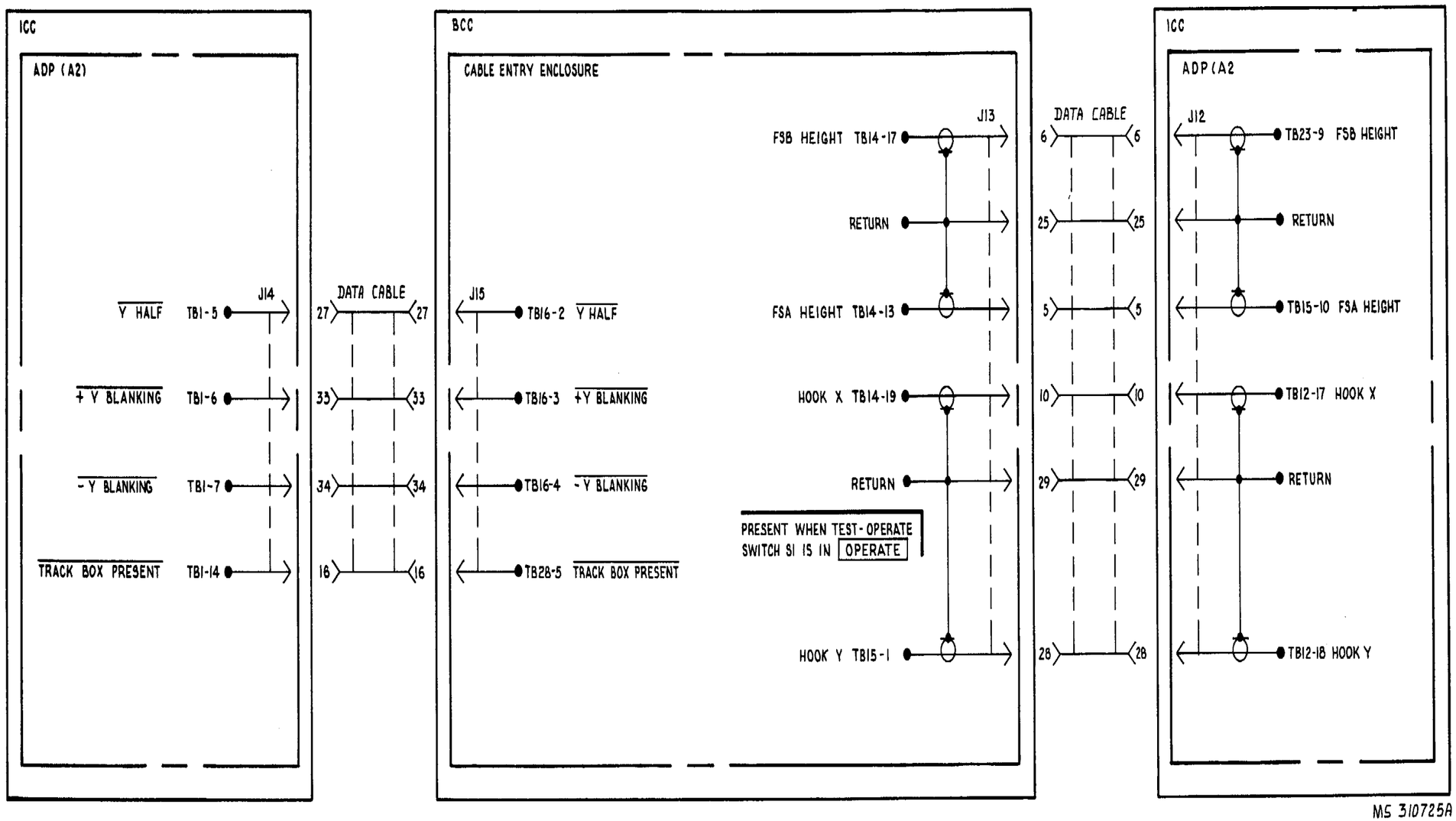


FIGURE 5-2. AADCP AND HAWK SYSTEM INTERFACE-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 3).

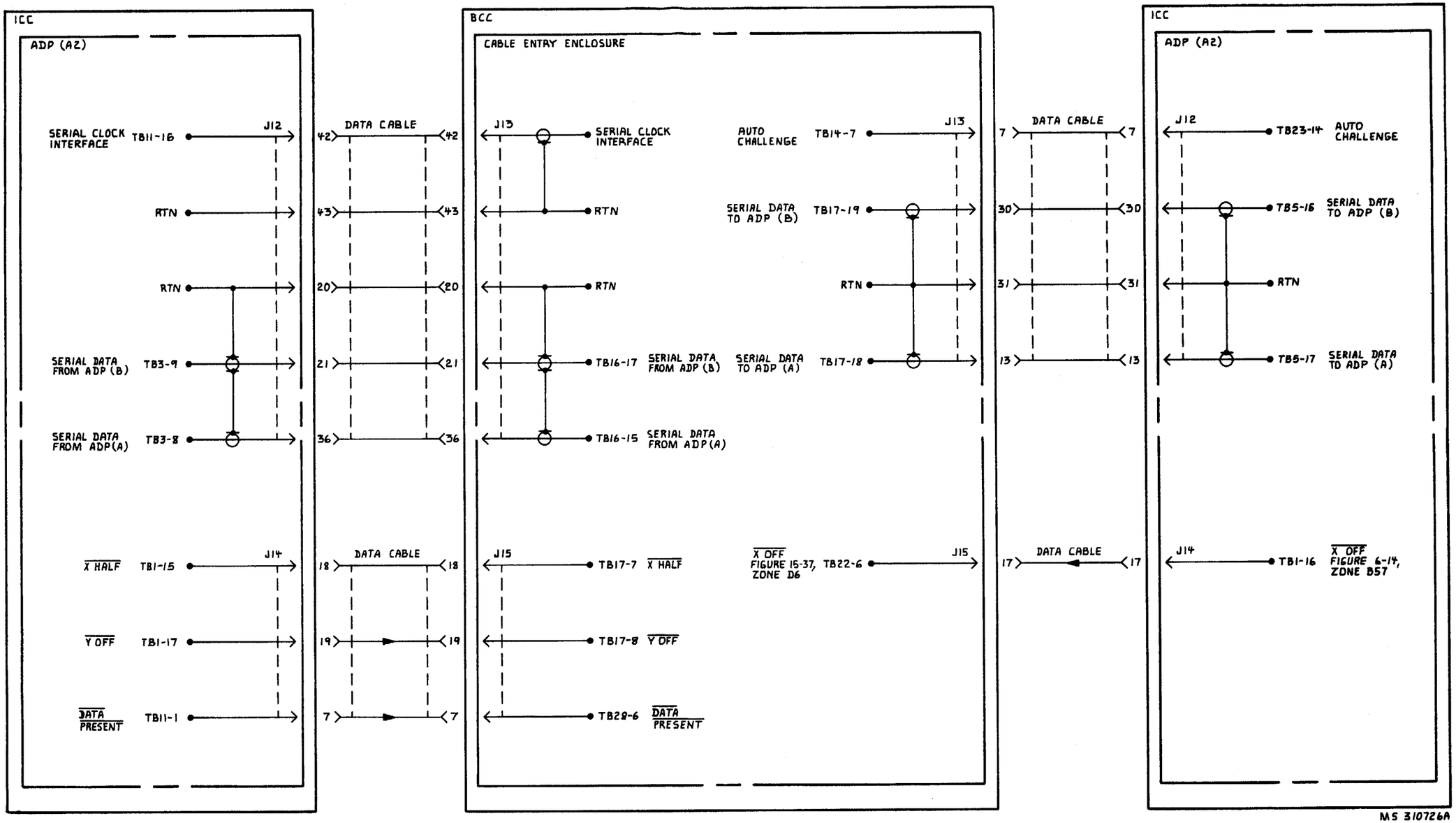


FIGURE 5-2. AADCP AND HAWK SYSTEM INTERFACE-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 3).

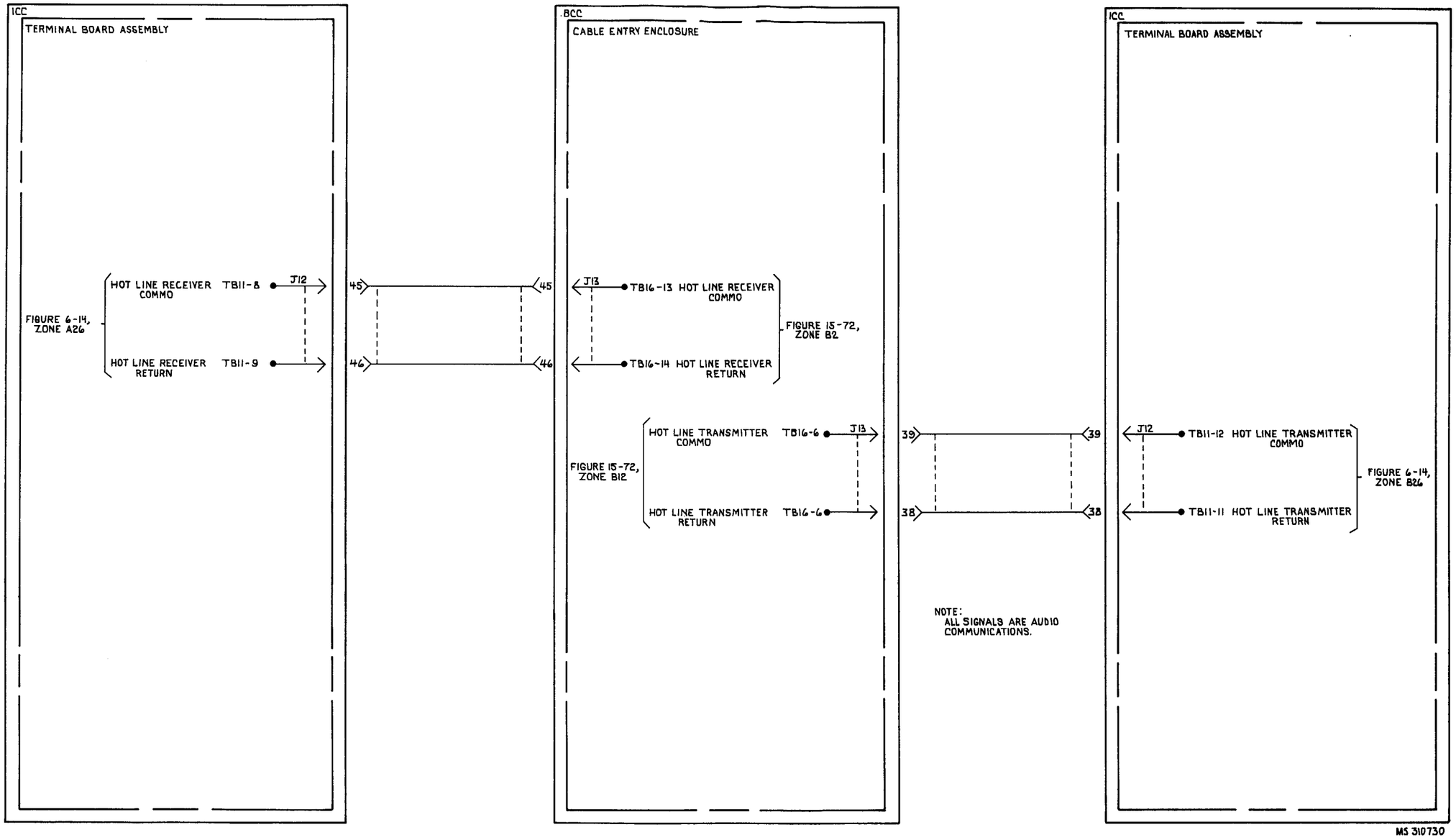


FIGURE 5-3. AADCP AND IMPROVED HAWK BATTERY-BACK-UP COMMUNICATIONS-SYSTEM FUNCTIONAL DIAGRAM

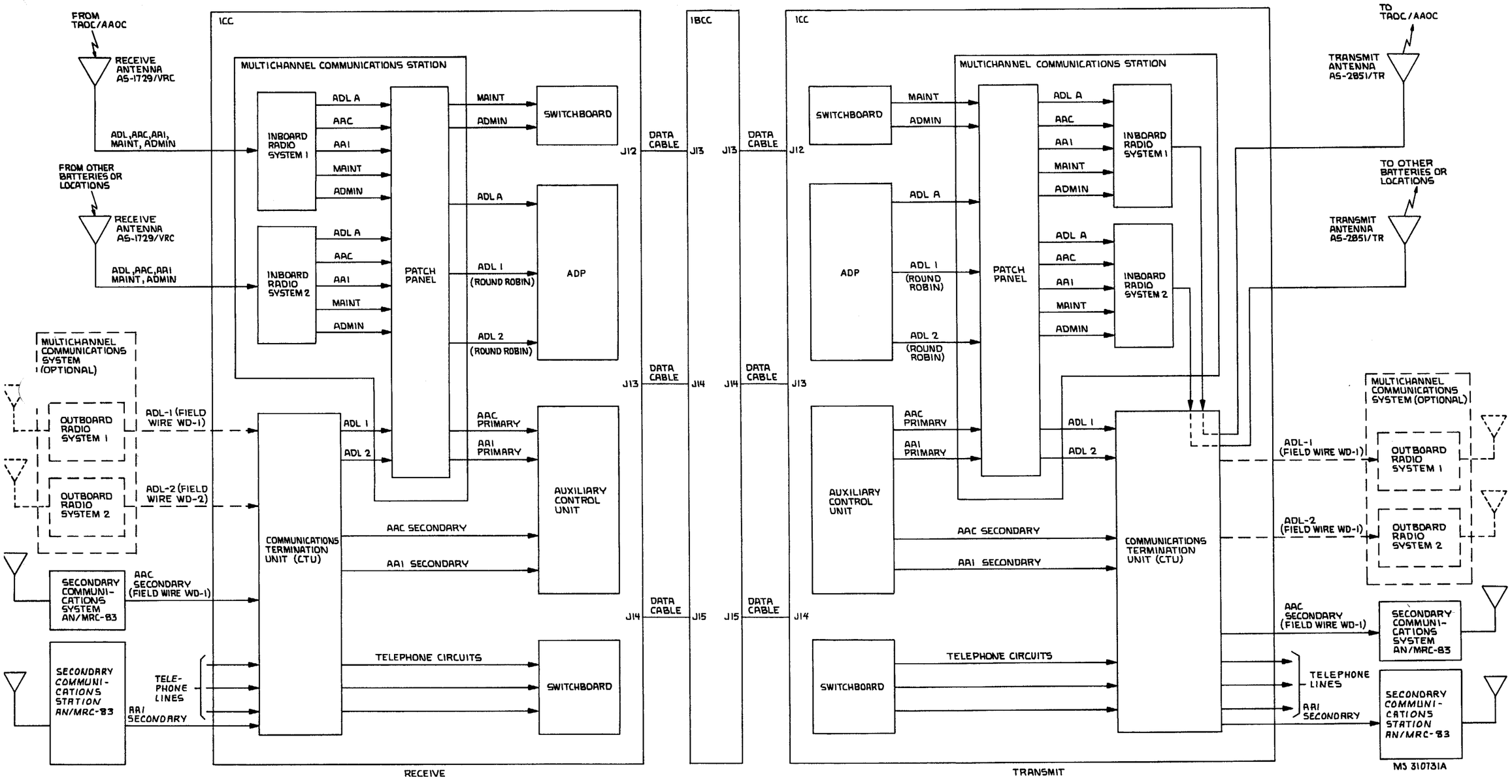
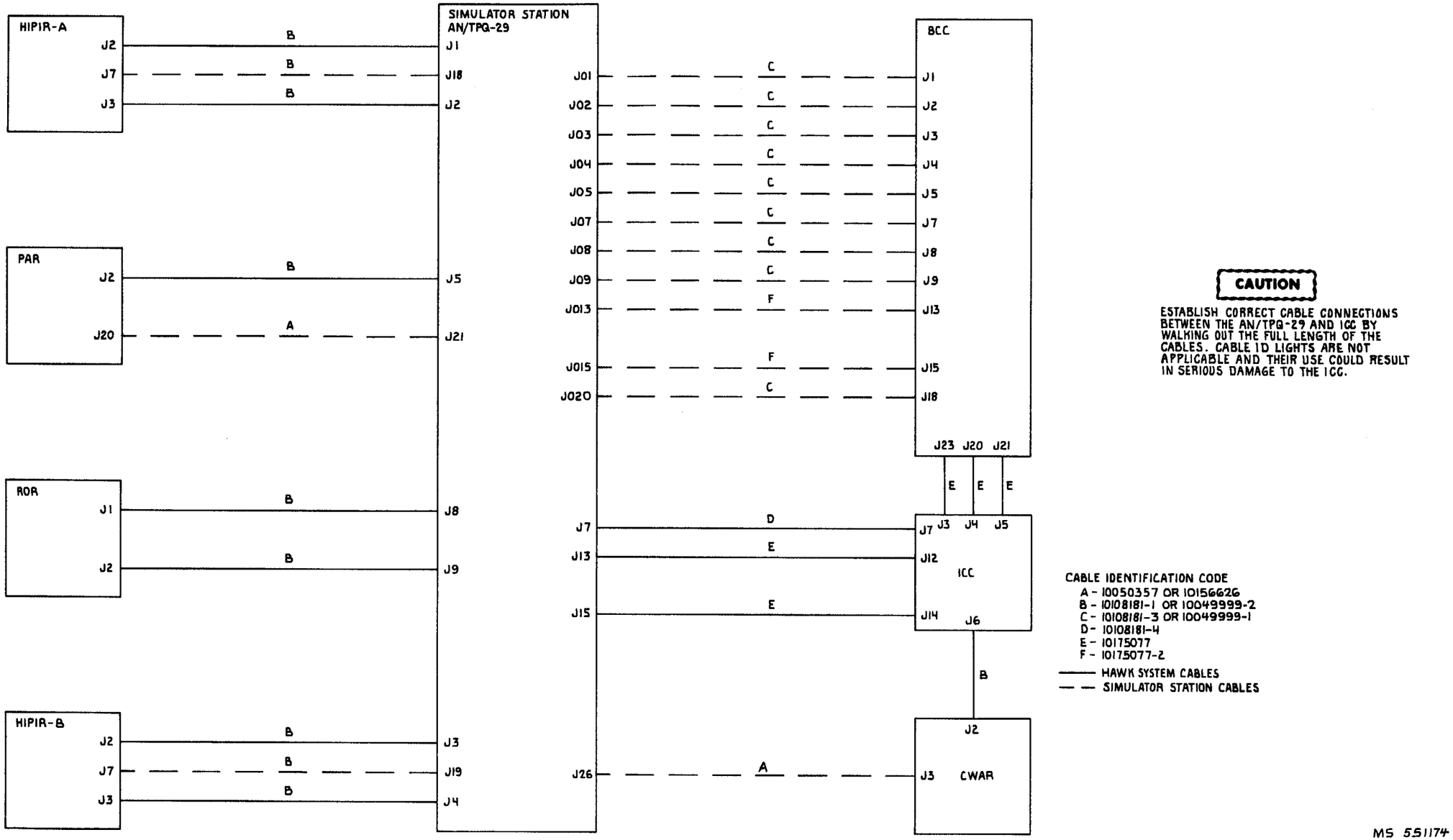


FIGURE 5-4. TAOC/AAOC AND IMPROVED HAWK SYSTEM-GENERAL BLOCK DIAGRAM (USMC).

5-13/5-14 blank

CHAPTER 6. SIMULATOR STATION AND HAWK SYSTEM INTERFACE GENERAL BLOCK DIAGRAM



CAUTION

ESTABLISH CORRECT CABLE CONNECTIONS BETWEEN THE AN/TPQ-29 AND ICC BY WALKING OUT THE FULL LENGTH OF THE CABLES. CABLE ID LIGHTS ARE NOT APPLICABLE AND THEIR USE COULD RESULT IN SERIOUS DAMAGE TO THE ICC.

FIGURE 6-1. SIMULATOR STATION AND HAWK BATTERY INTERFACE-GENERAL BLOCK DIAGRAM.

6-1/6-2 blank

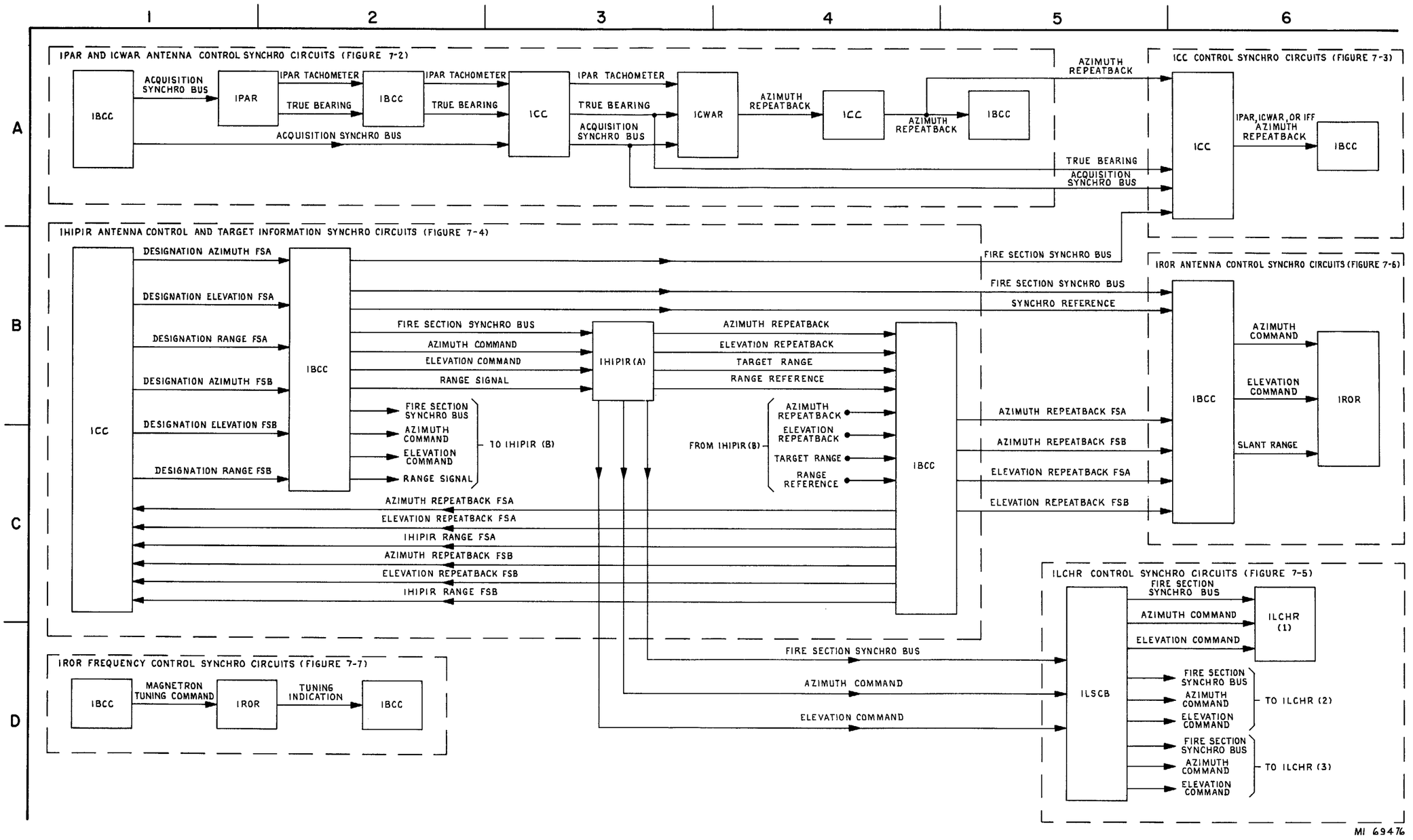
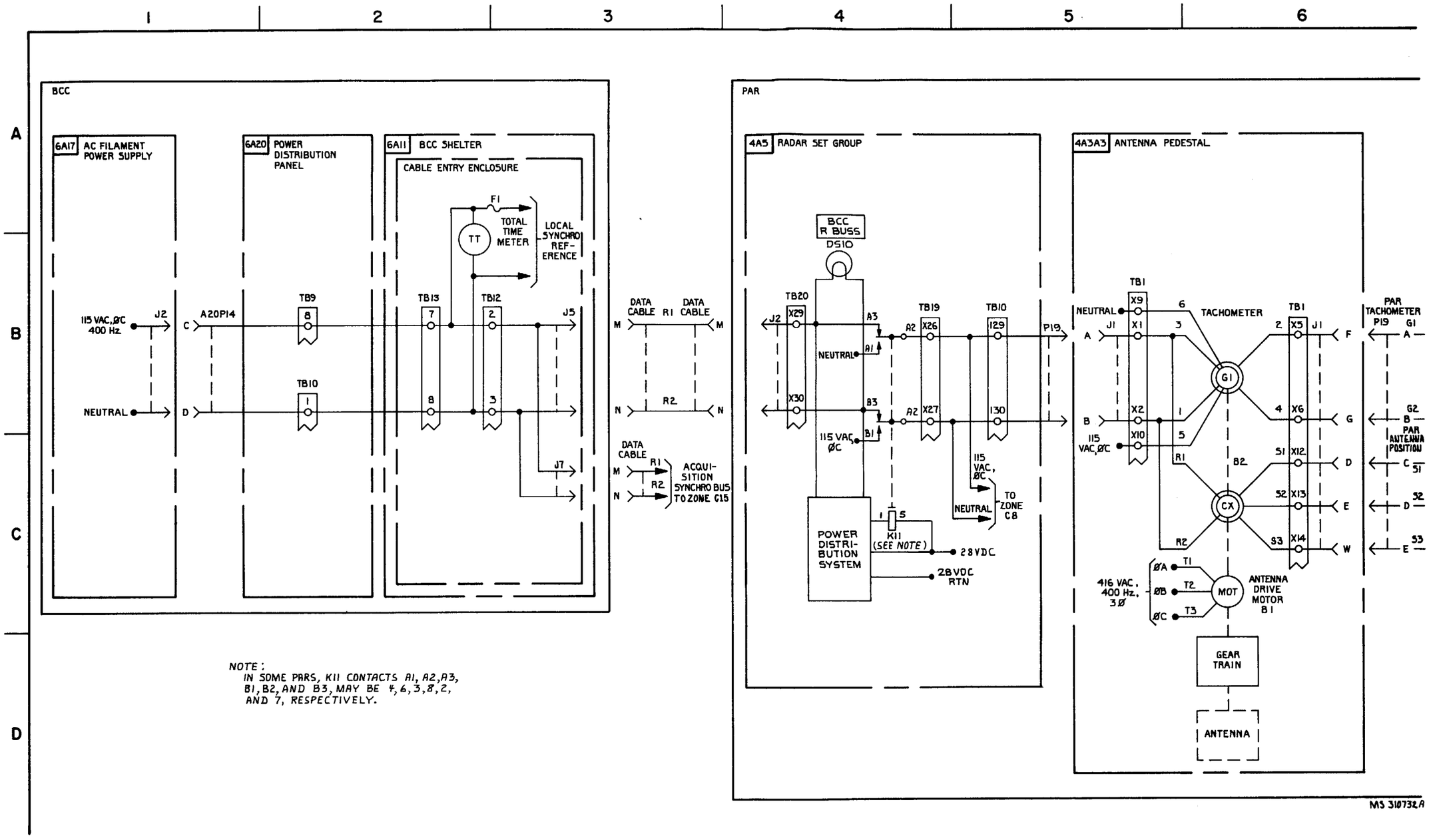


FIGURE 7-1. SYSTEM SYNCHRO CIRCUITS-GENERAL BLOCK DIAGRAM.



NOTE:
IN SOME PARS, K11 CONTACTS A1, A2, A3, B1, B2, AND B3, MAY BE 4, 6, 3, 8, 2, AND 7, RESPECTIVELY.

FIGURE 7-2. PAR AND CWAR ANTENNA CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 6).

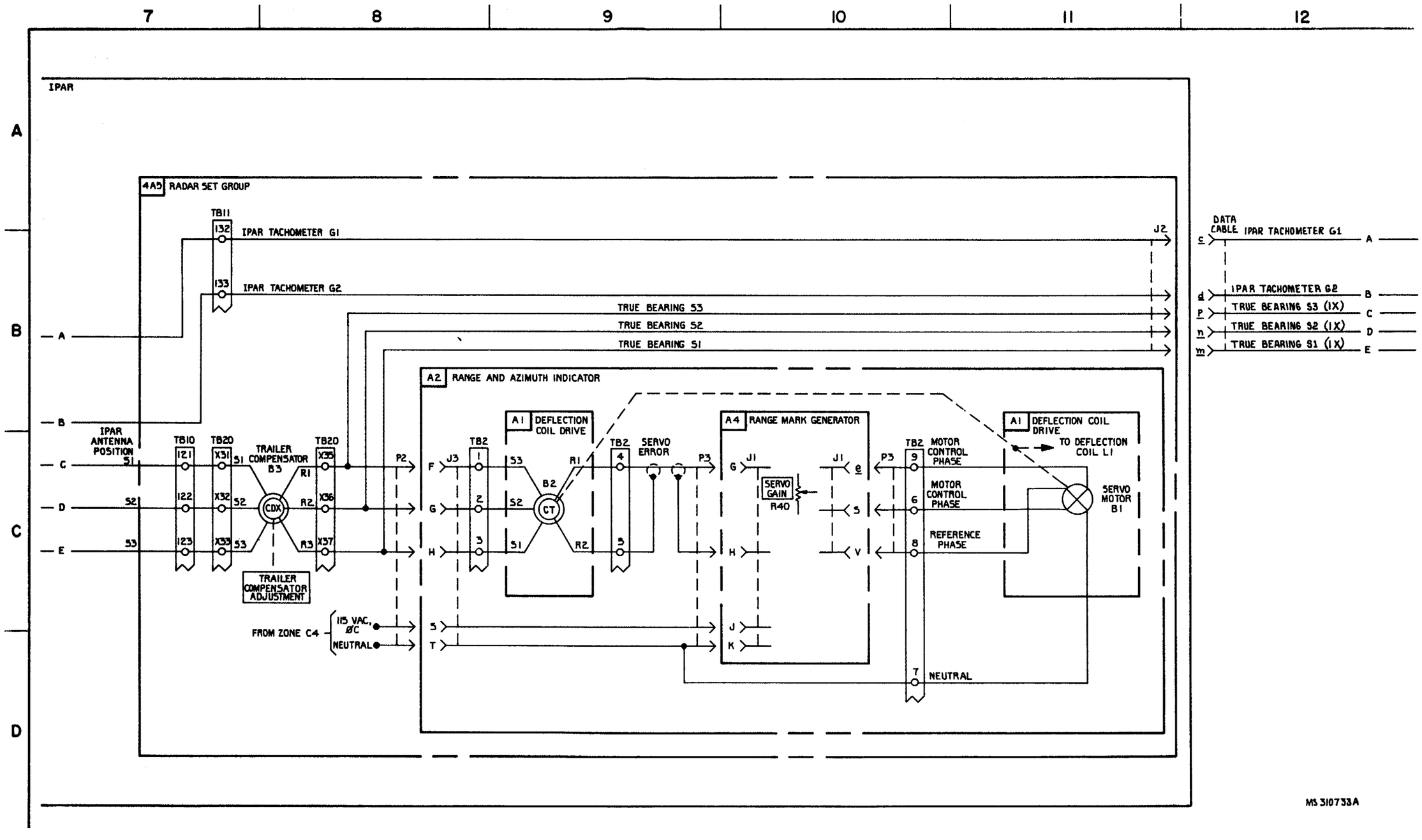


FIGURE 7-2. IPAR AND ICWAR ANTENNA CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 6).

7-3/7-4 blank

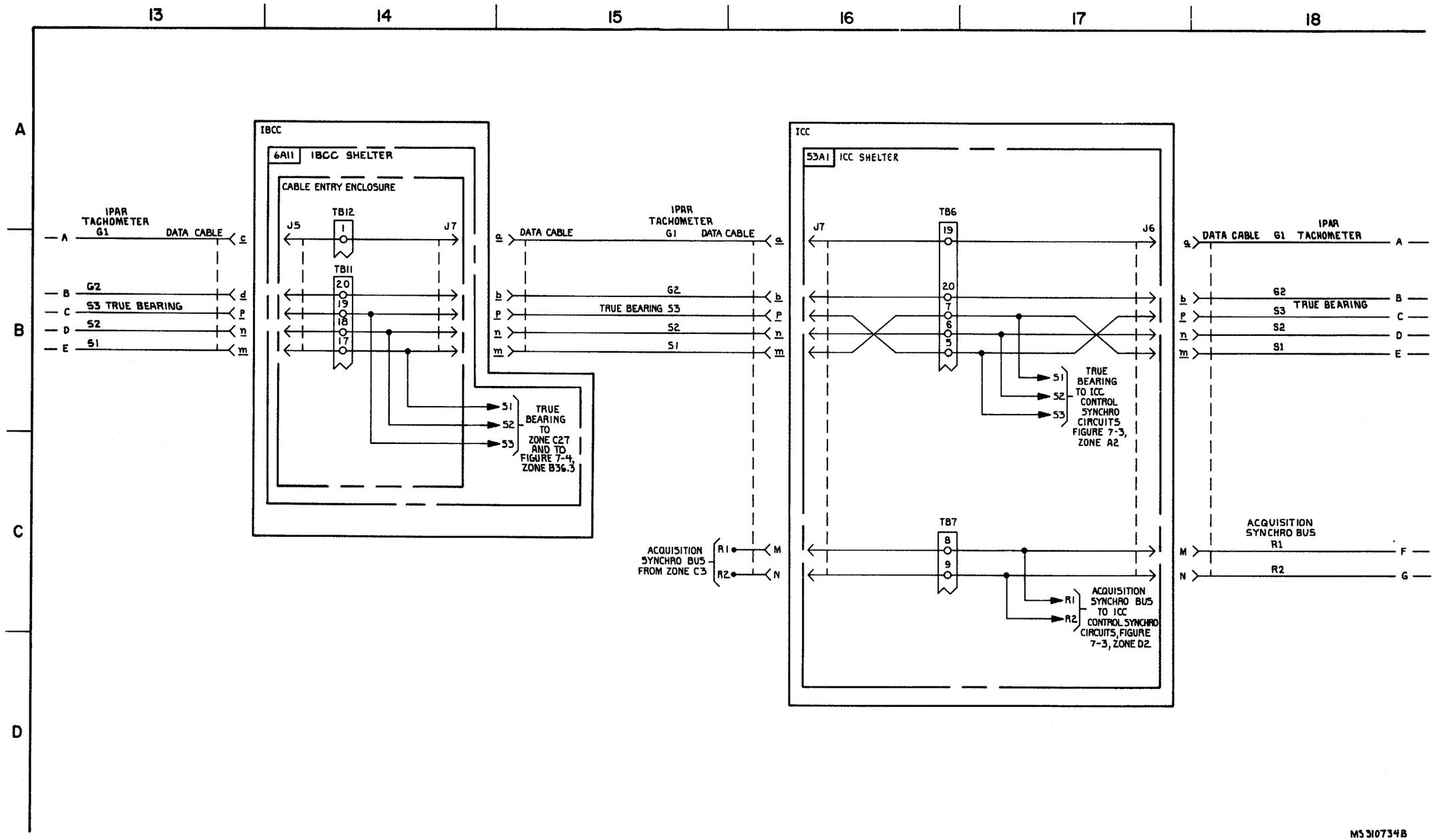


FIGURE 7-2. IPAR AND ICWAR ANTENNA CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 6).

7-5/7-6 blank

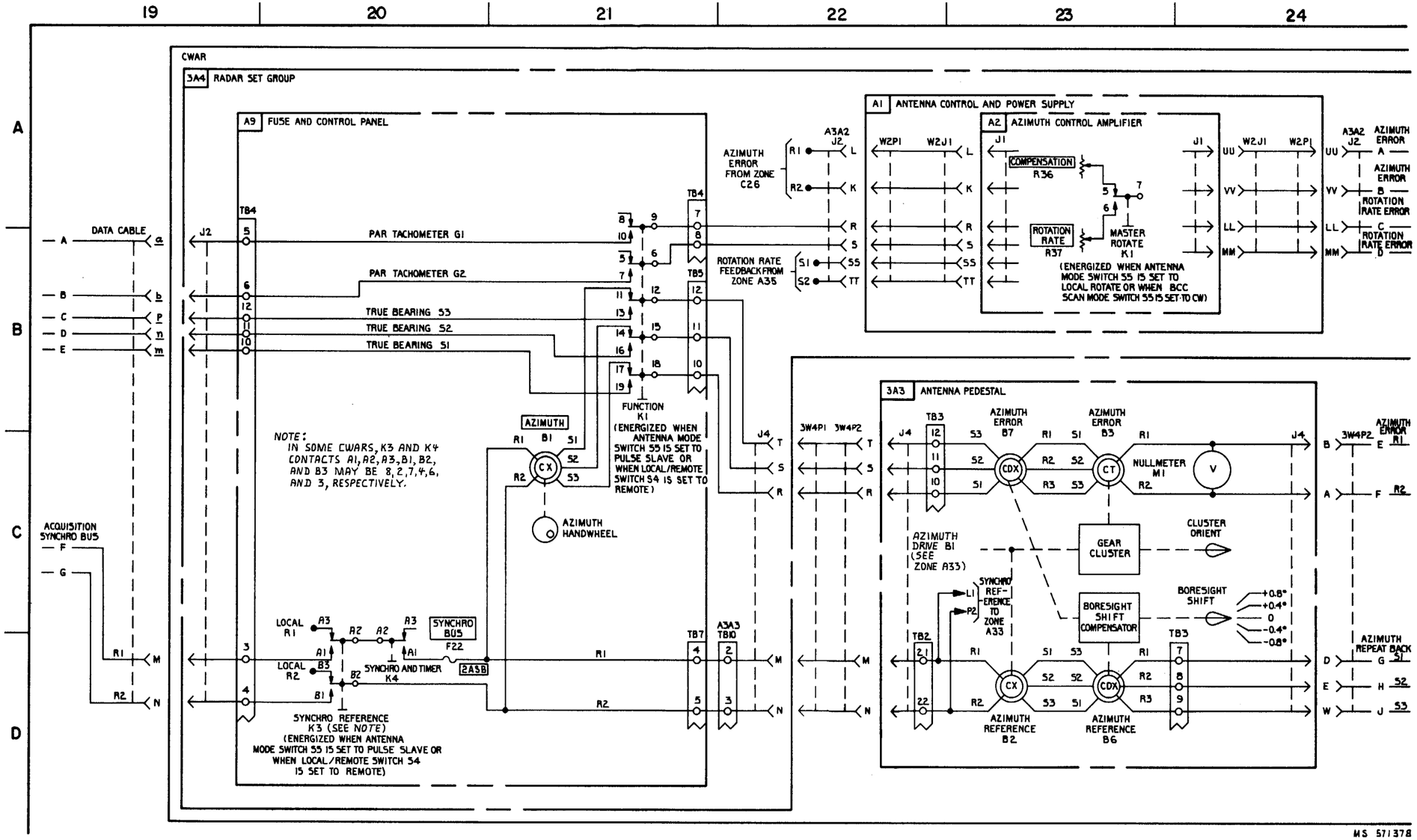


FIGURE 7-2. PAR AND CWAR ANTENNA CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 6).

7-7/7-8 blank

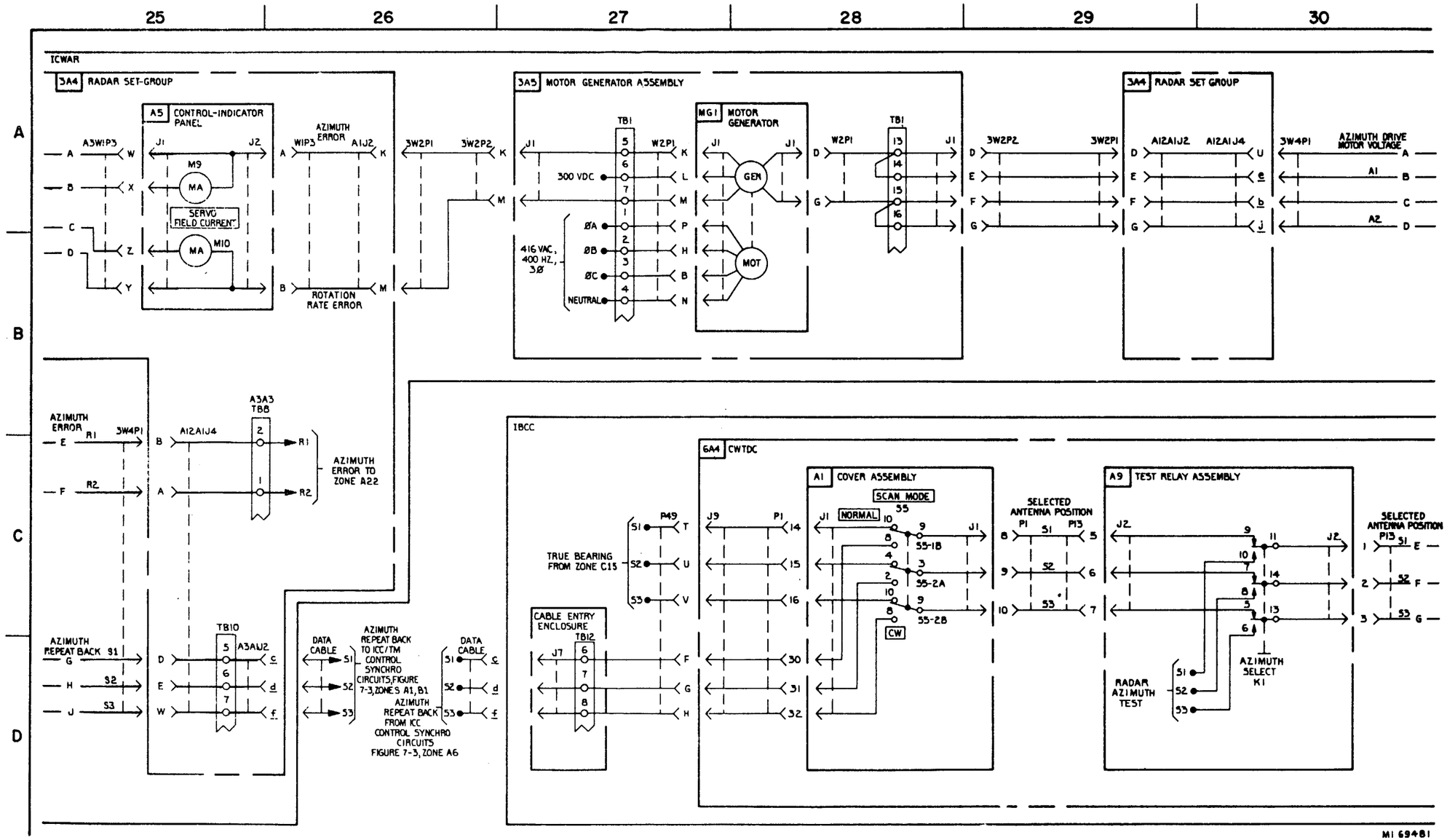


FIGURE 7-2. IPAR AND ICWAR ANTENNA CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 6).

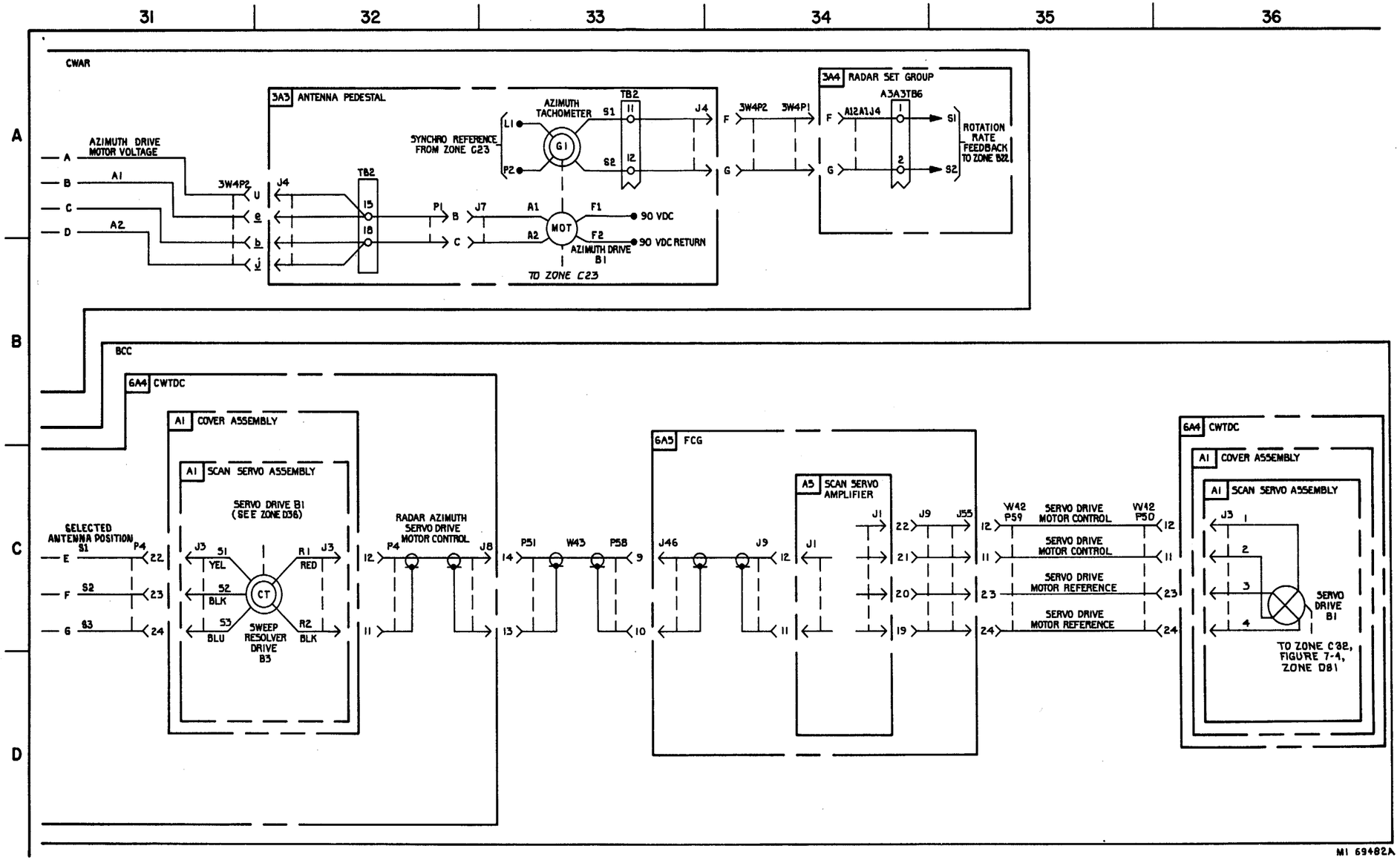


FIGURE 7-2. PAR AND CWAR ANTENNA CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 6).

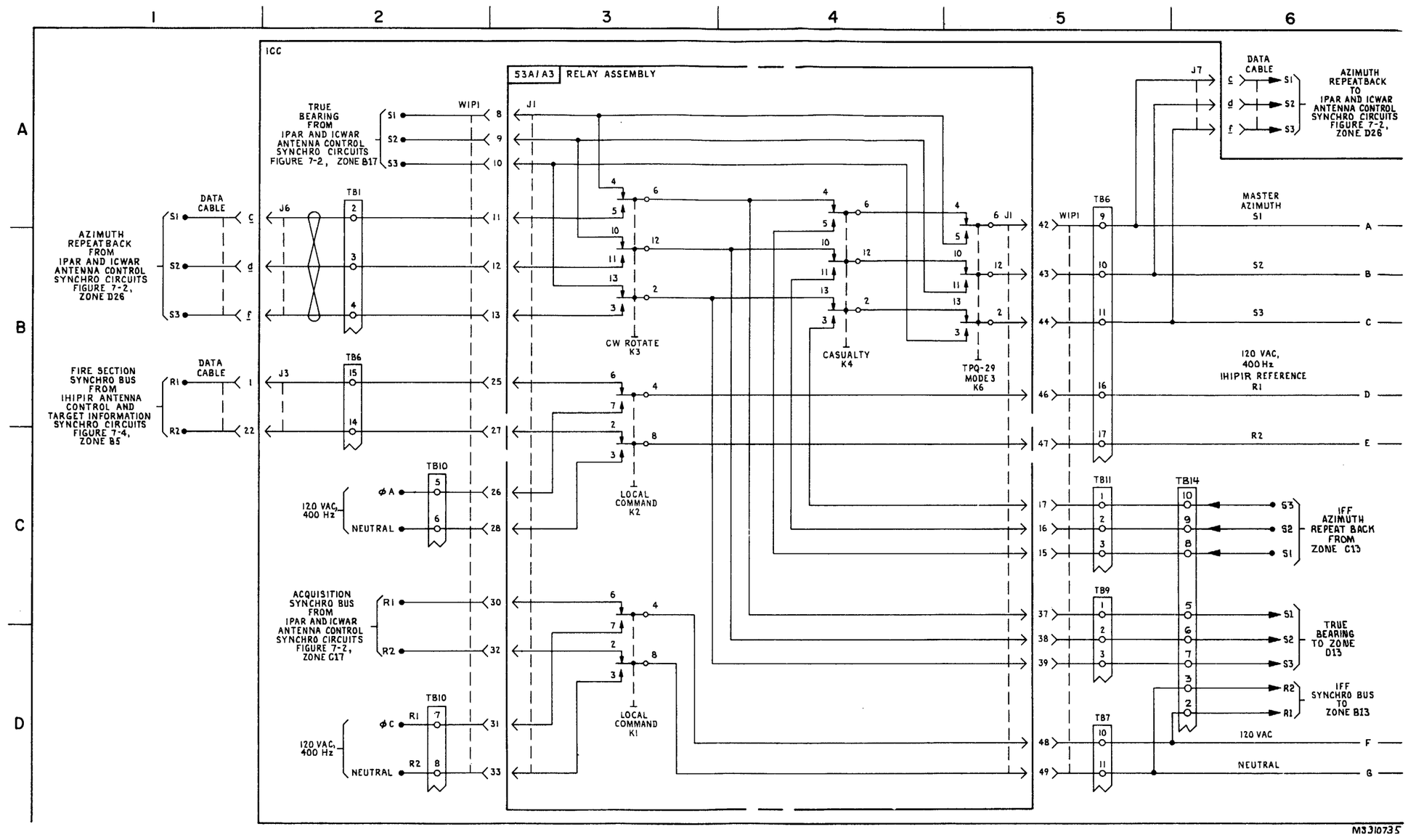


FIGURE 7-3. ICC CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 5).

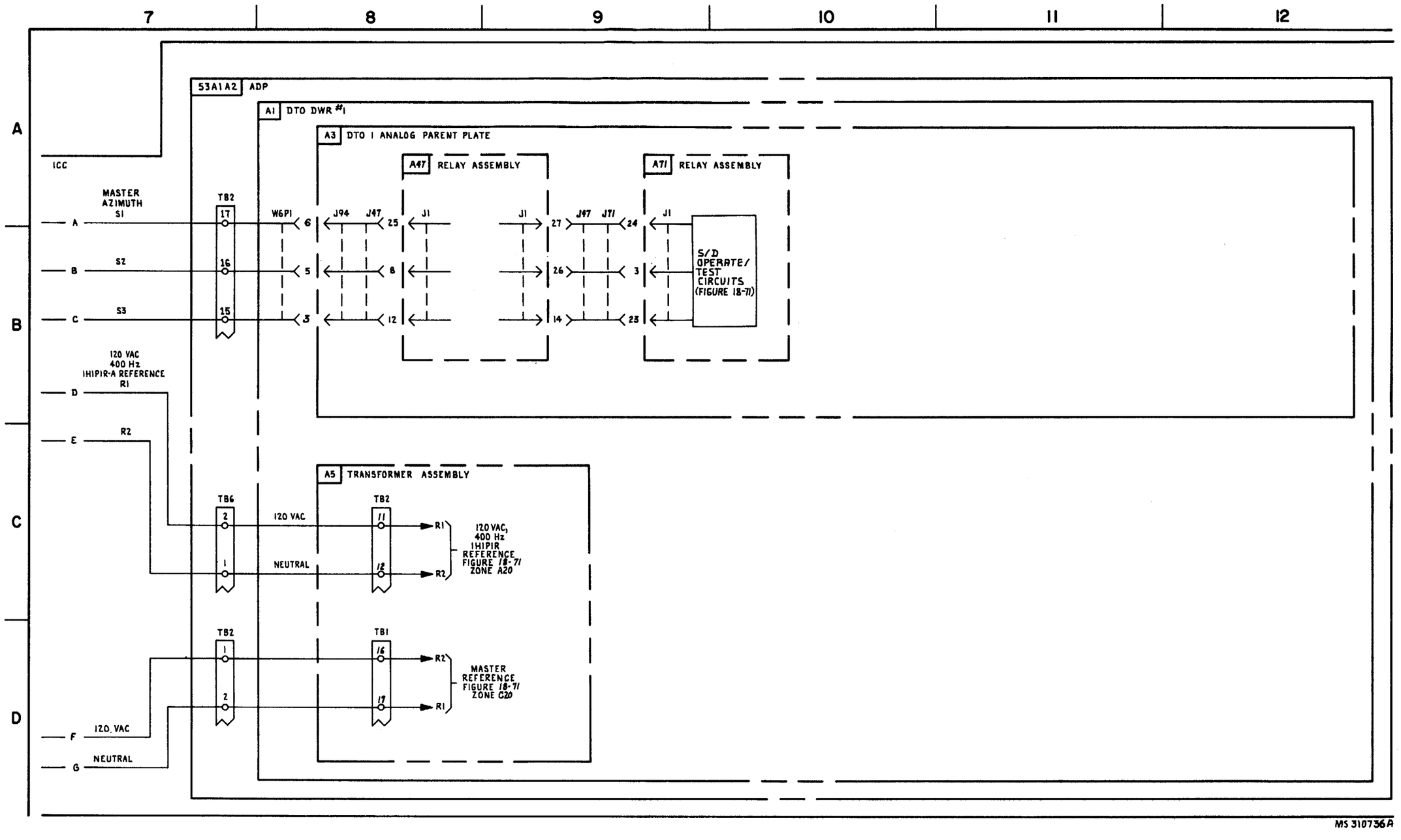


FIGURE 7-3. ICC CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 5)

7-13/7-14 blank

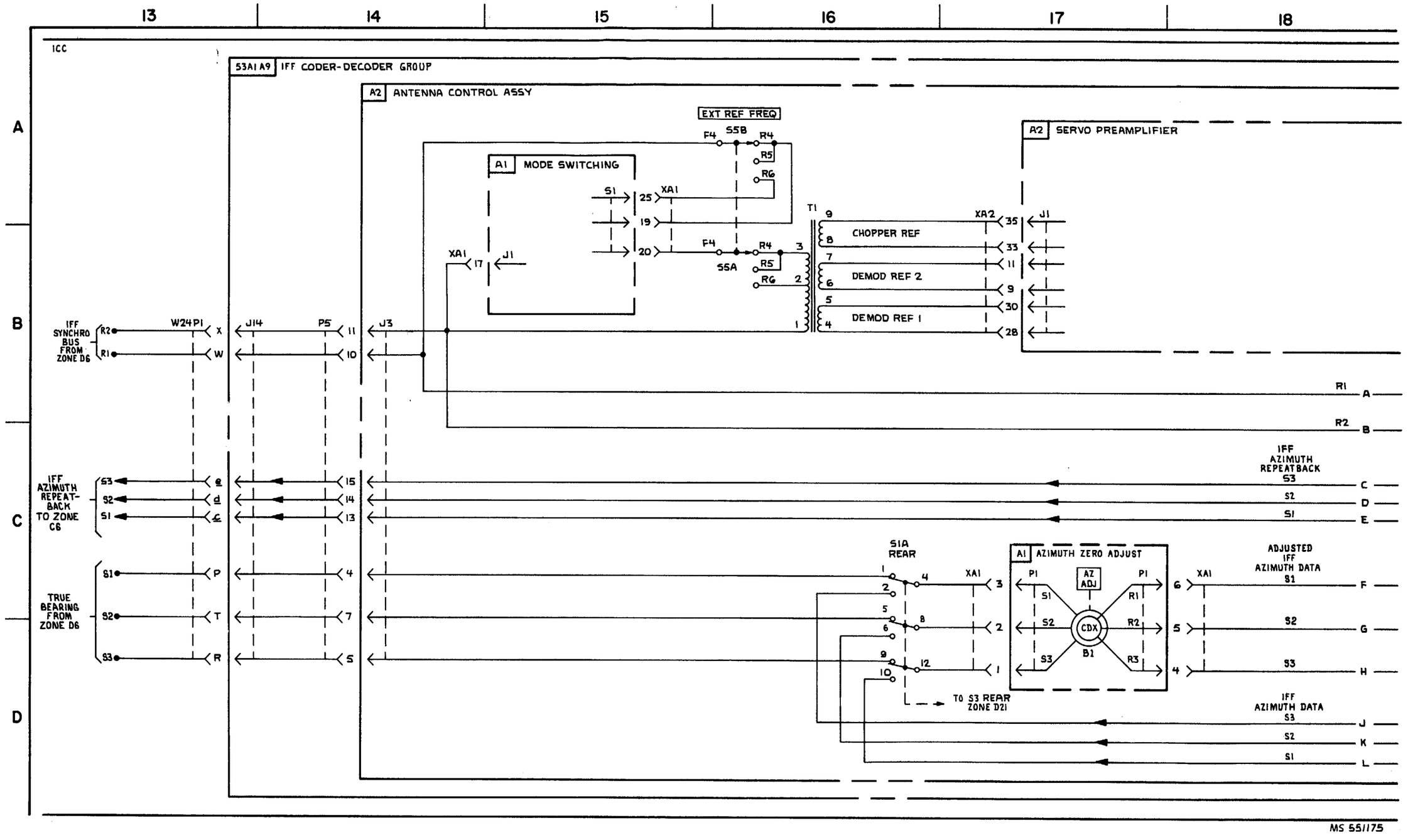


FIGURE 7-3. ICC CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 5)

7-15/7-16 blank

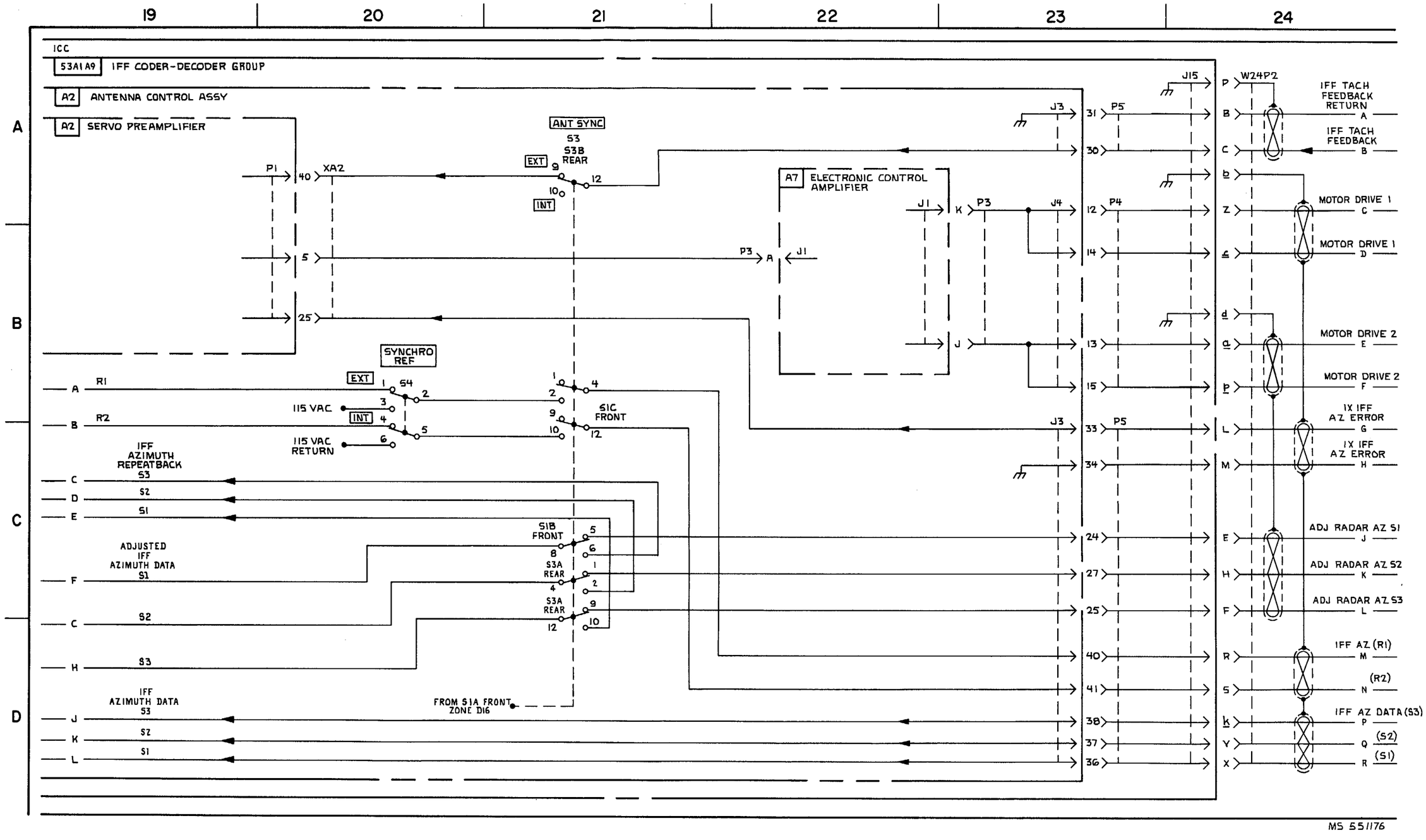


FIGURE 7-3. ICC CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 5)

7-17/7-18 blank

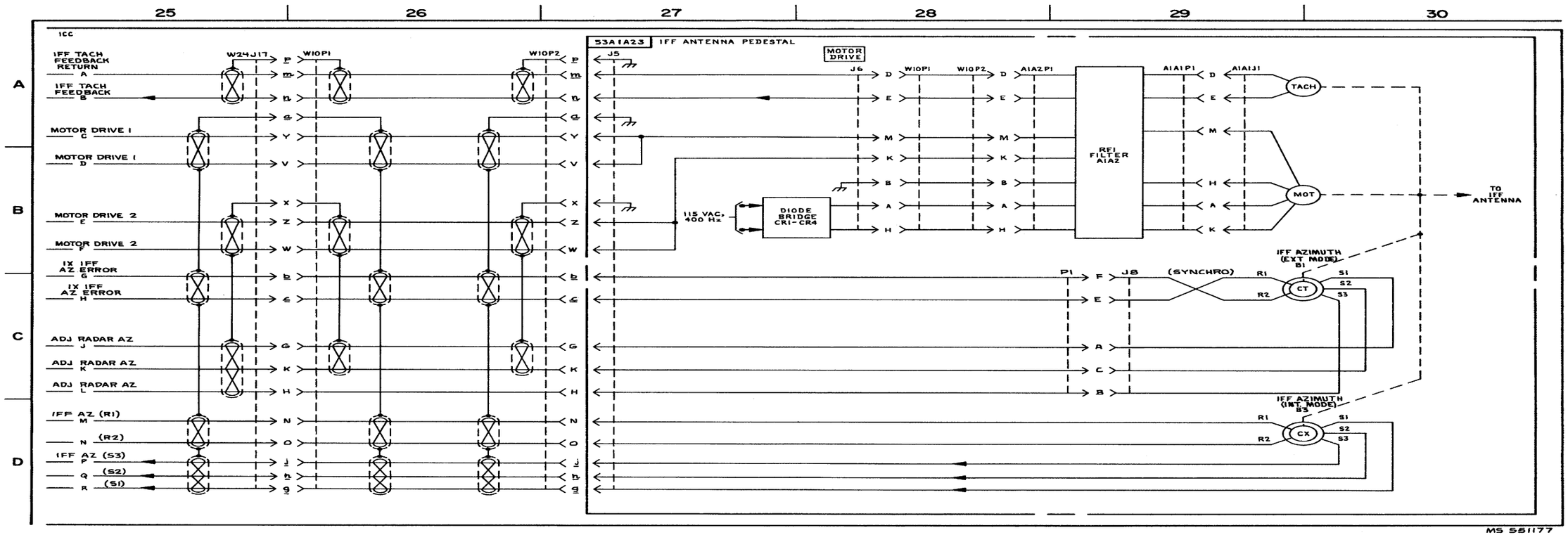


FIGURE 7-3. ICC CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 5).

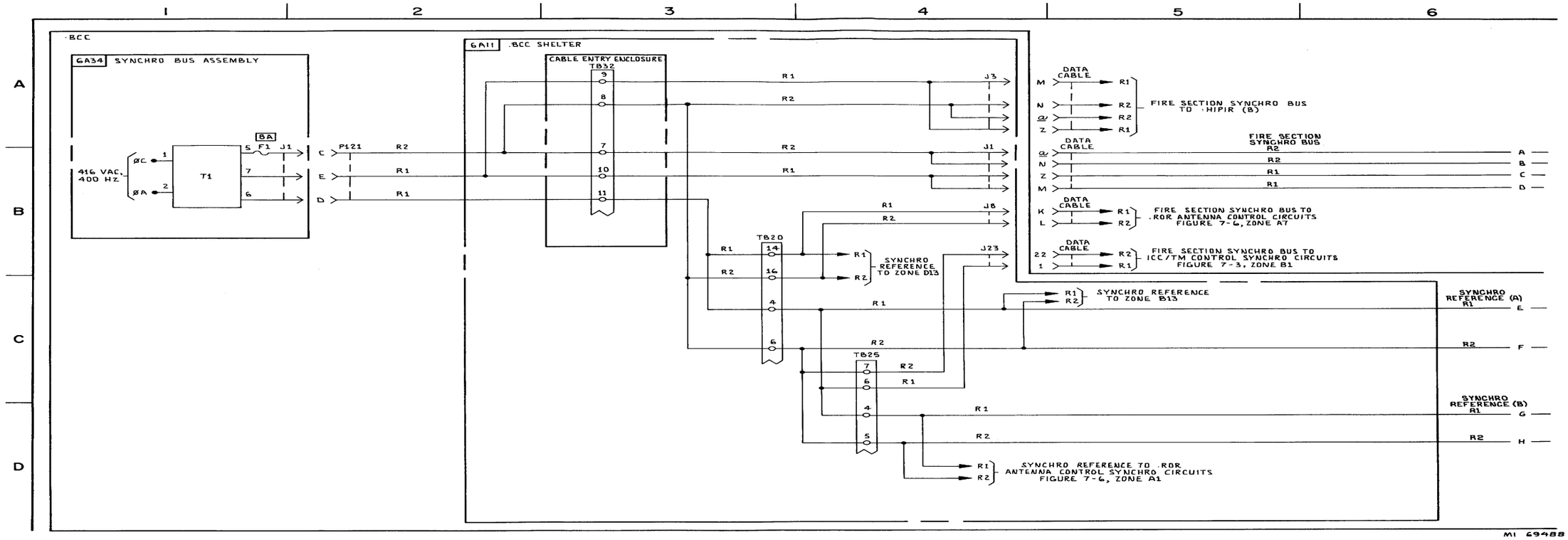


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TAGRET INFORMATION SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 18).

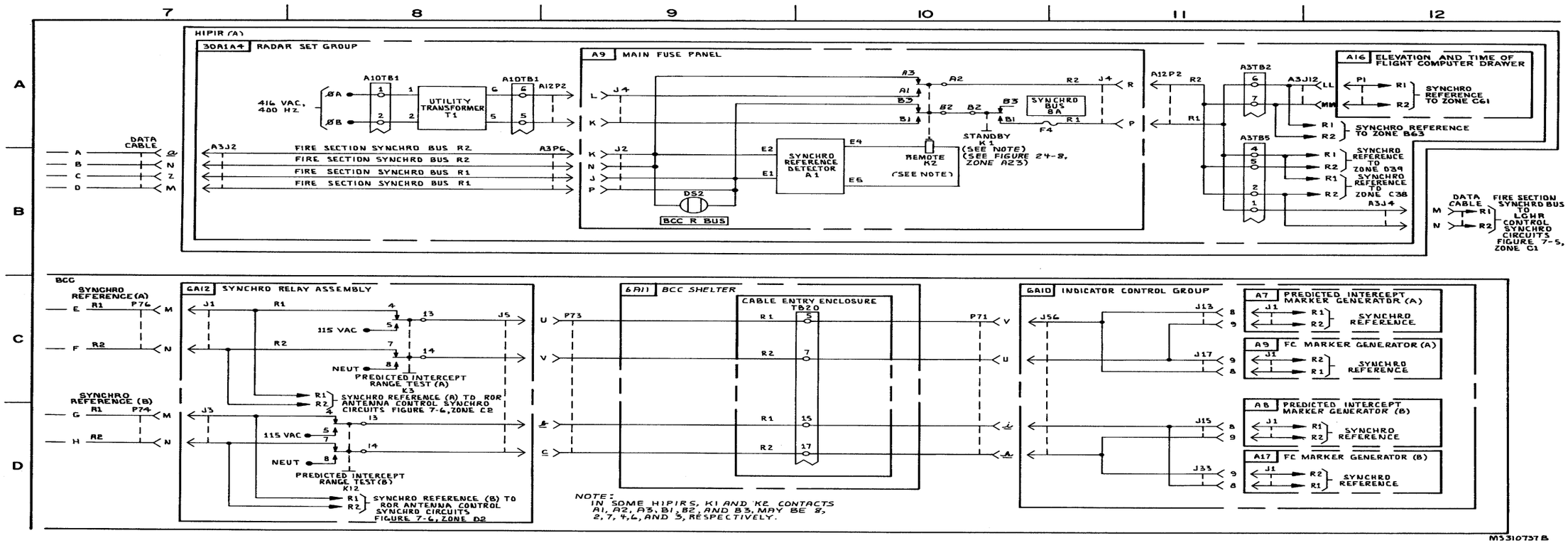


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 18).

7-21/7-22 blank

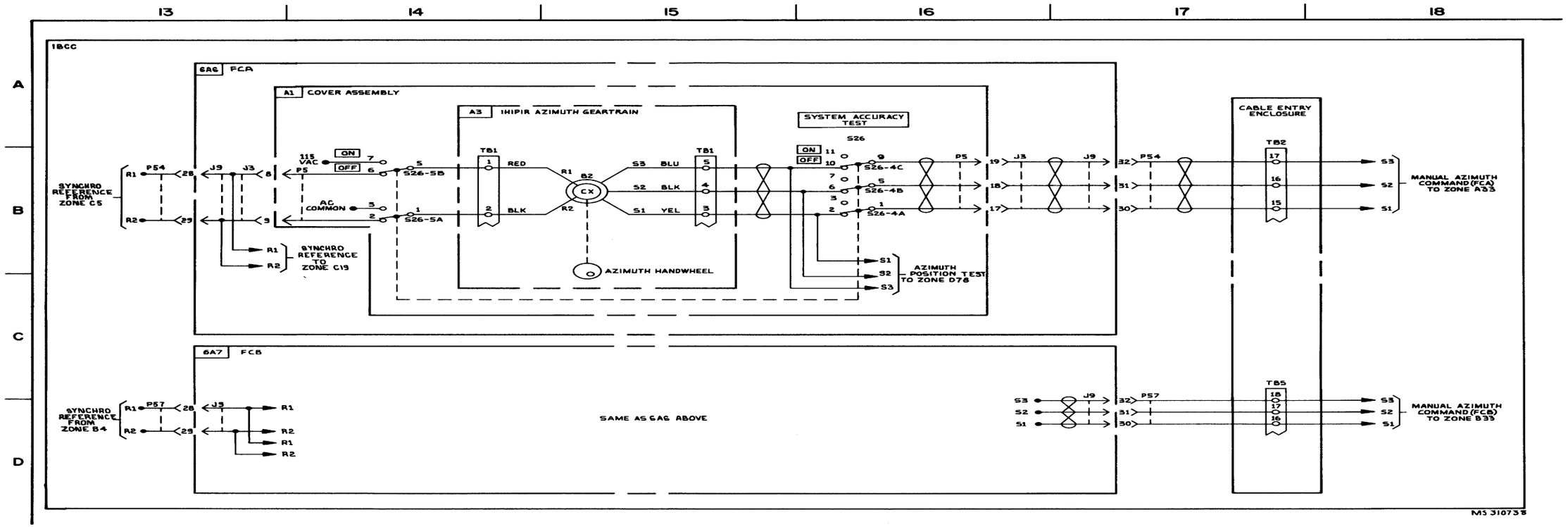


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 18).

7-23/7-24 blank

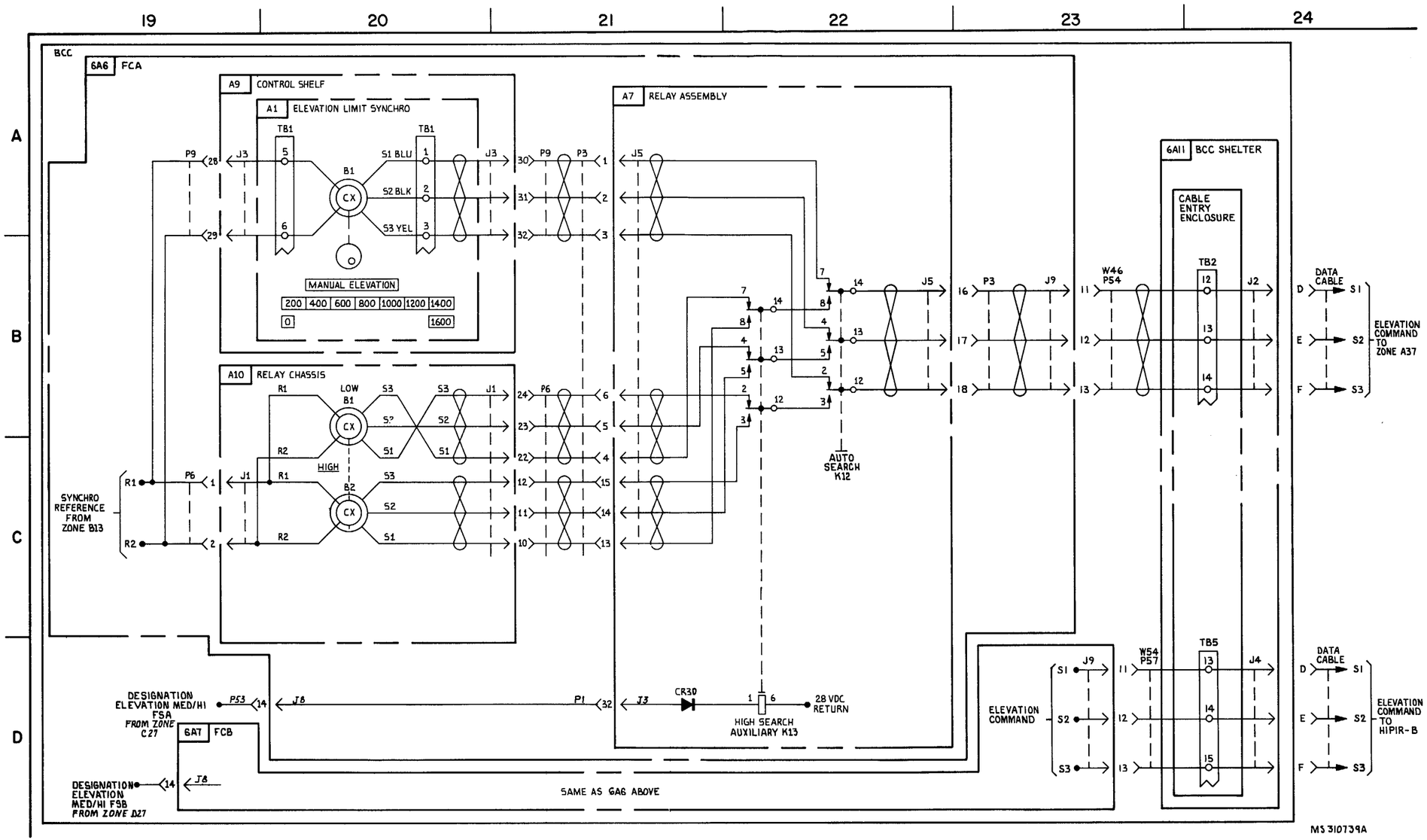


FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 18).

7-25/7-26 blank

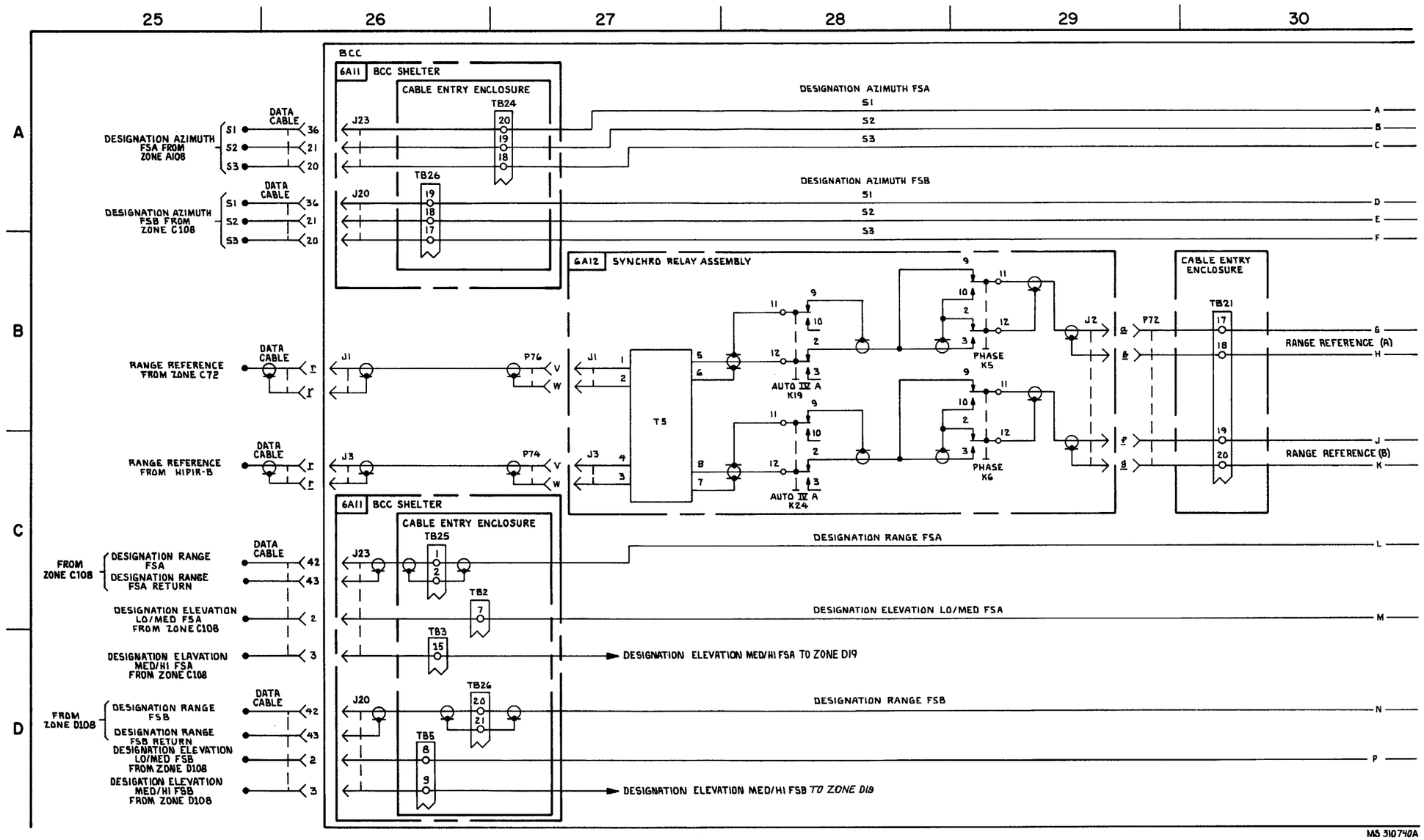


FIGURE 7-4. HIPIR ANTENNA CONTROL AND TRRGET INFORMATION SYNCHRO CIRCUITS-SYSTEM FUNCTONAL DIRGRAM (SHEET 5 OF 18)

7-27/7-28 blank

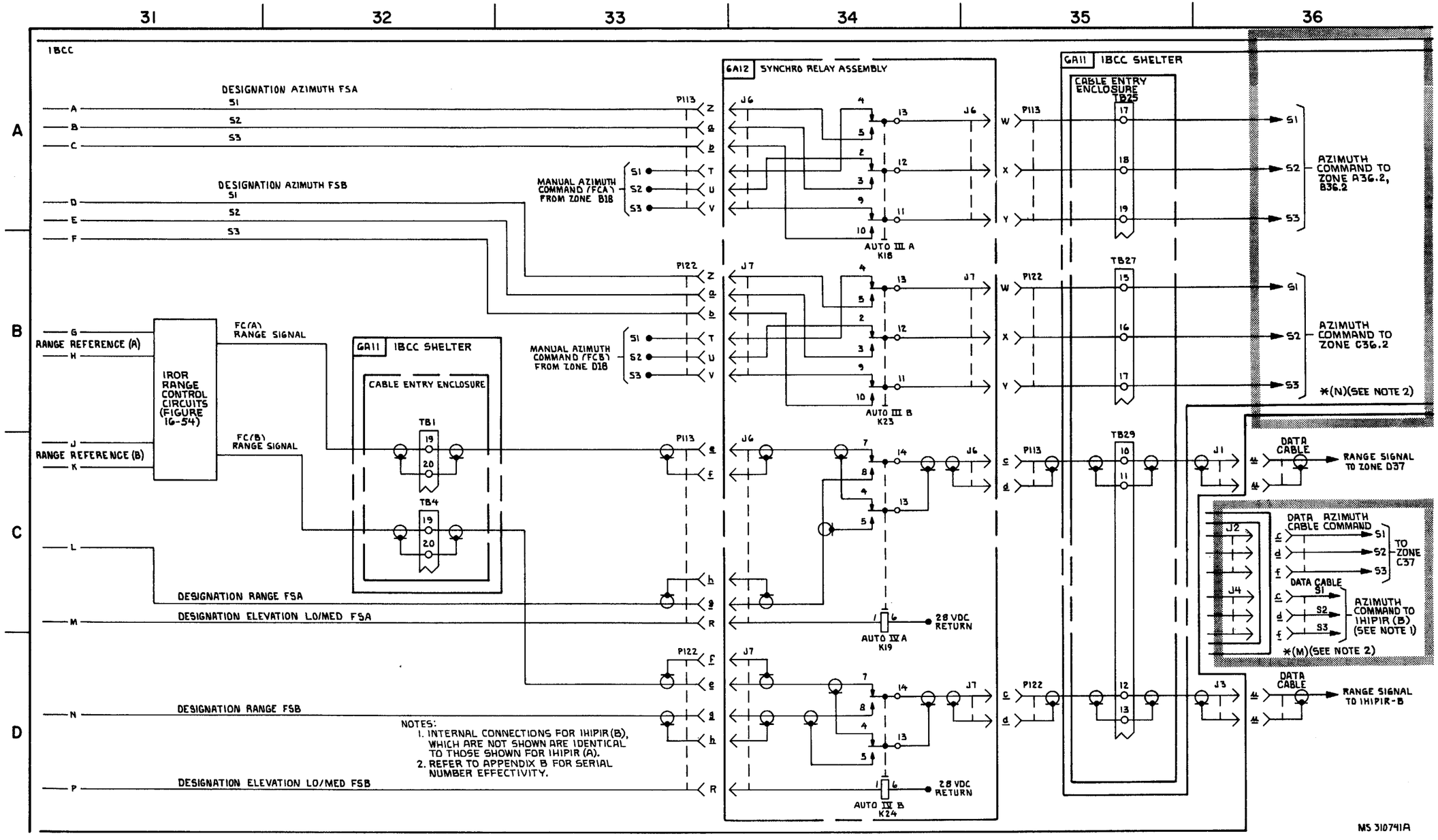


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 18).

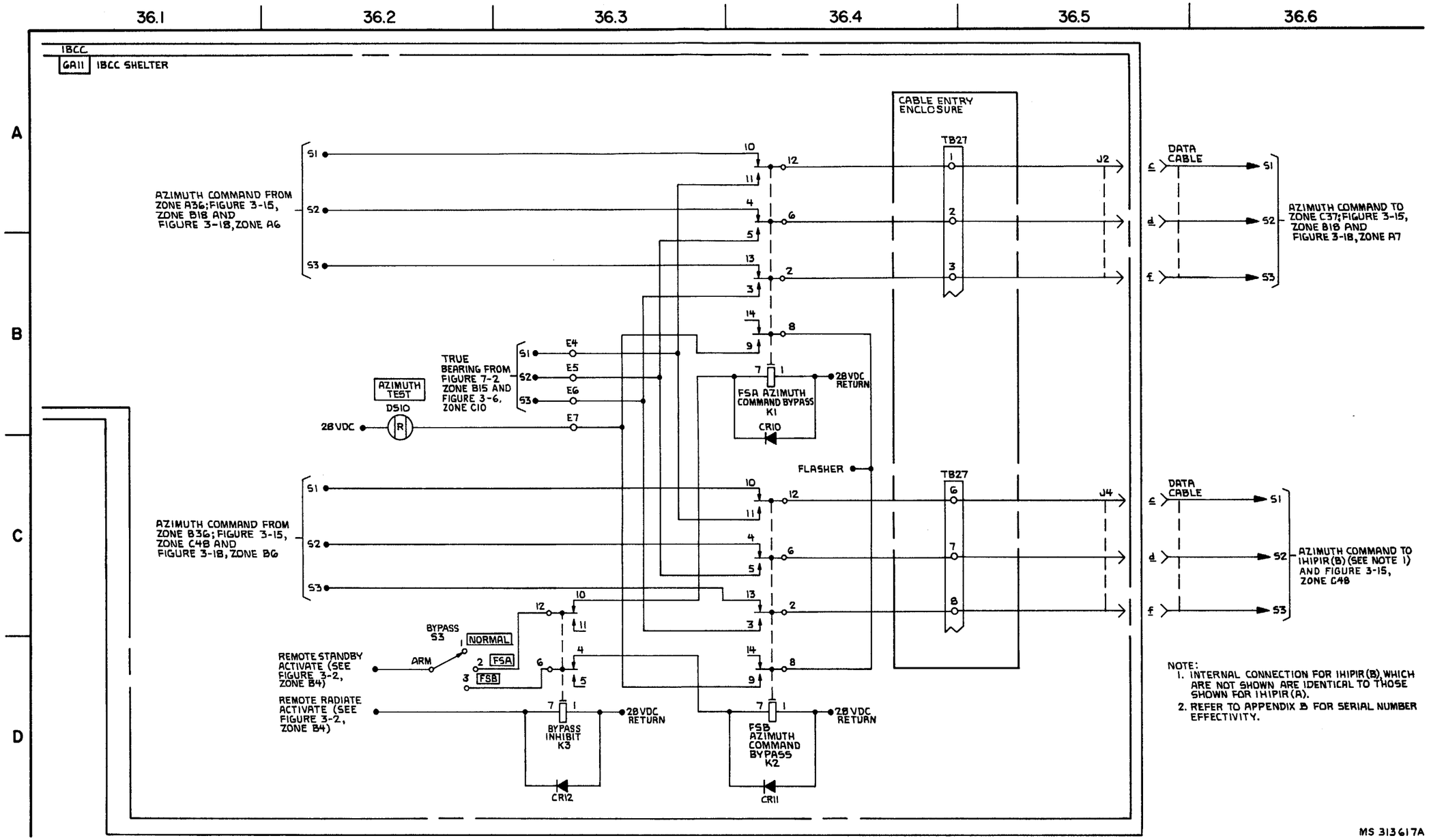


*FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS * (N) (SEE NOTE 2) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 6.1 OF 18).*

7-30.1/7-30.2 blank

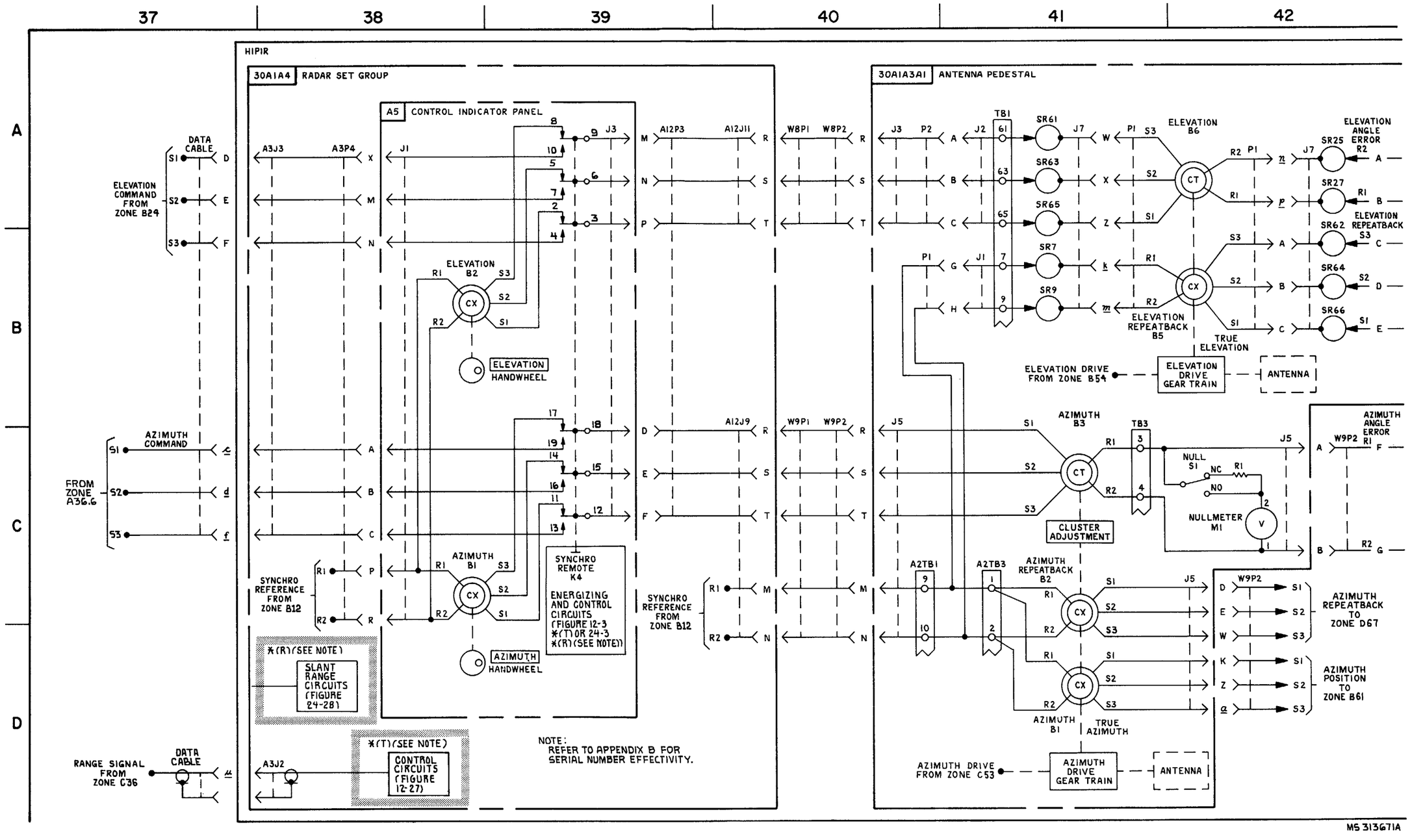


FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SUYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 18).

7-31/7-32 blank

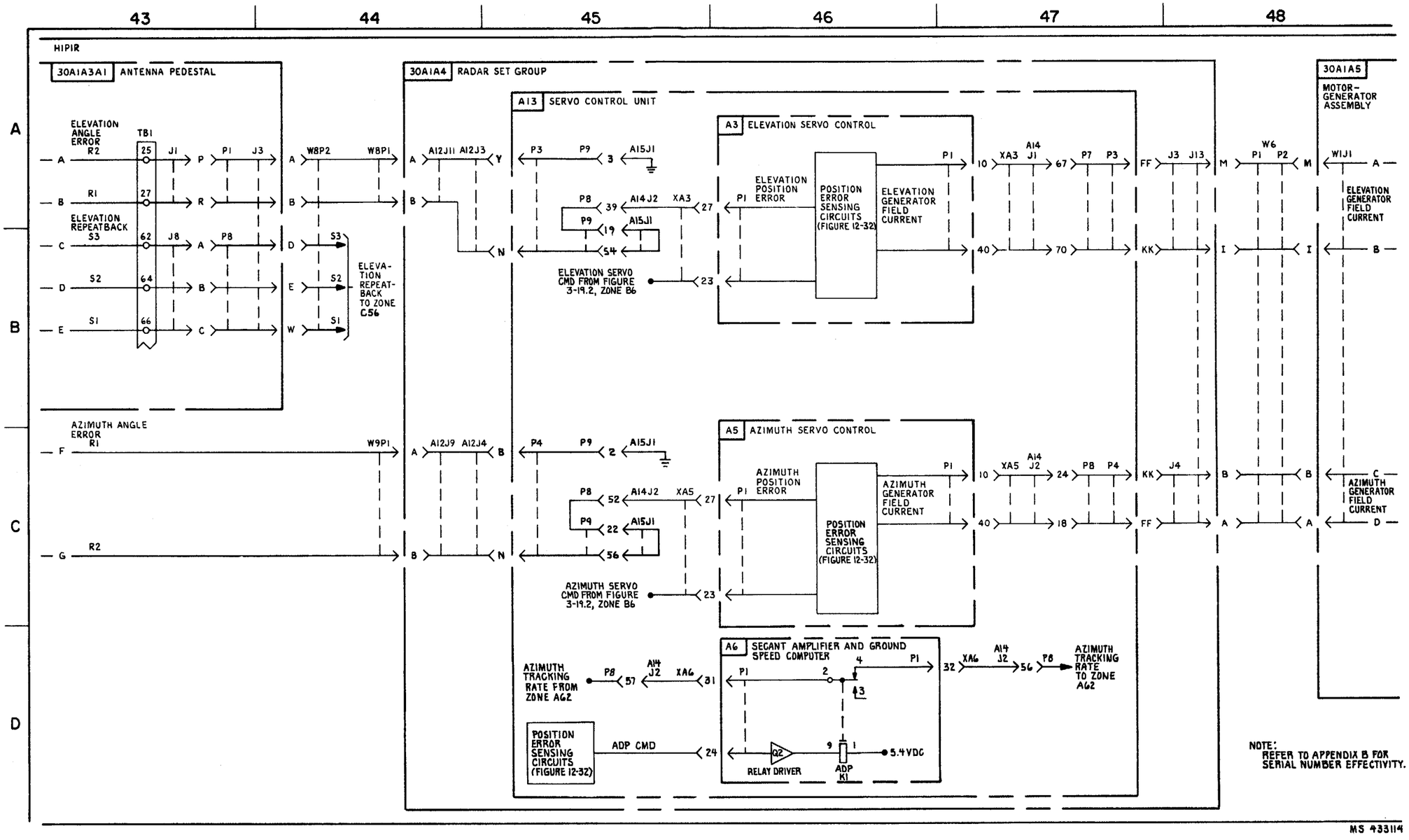


*FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS * (T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 18).*

7-33/7-34 blank

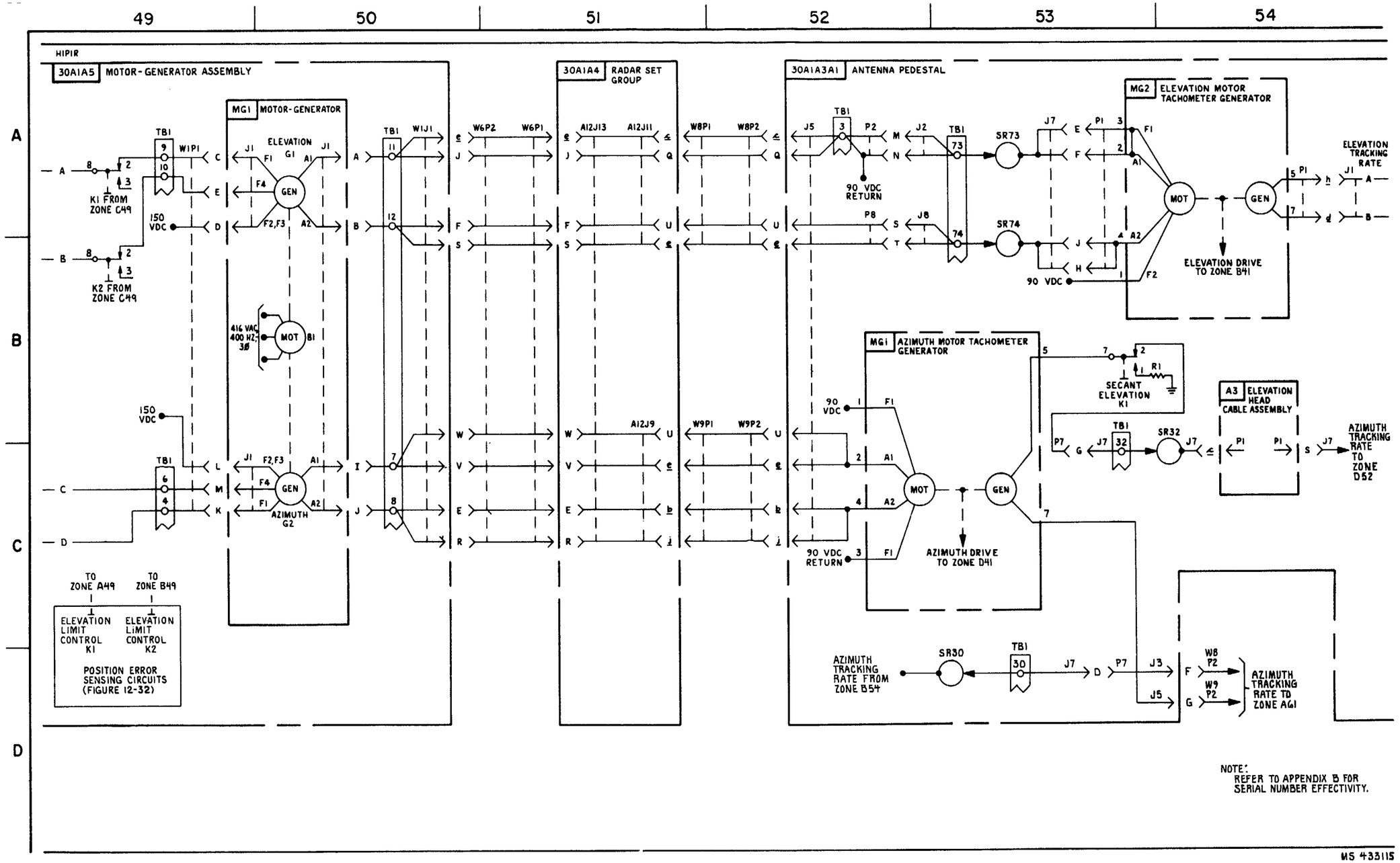


*FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS * (T) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 9 OF 18).*

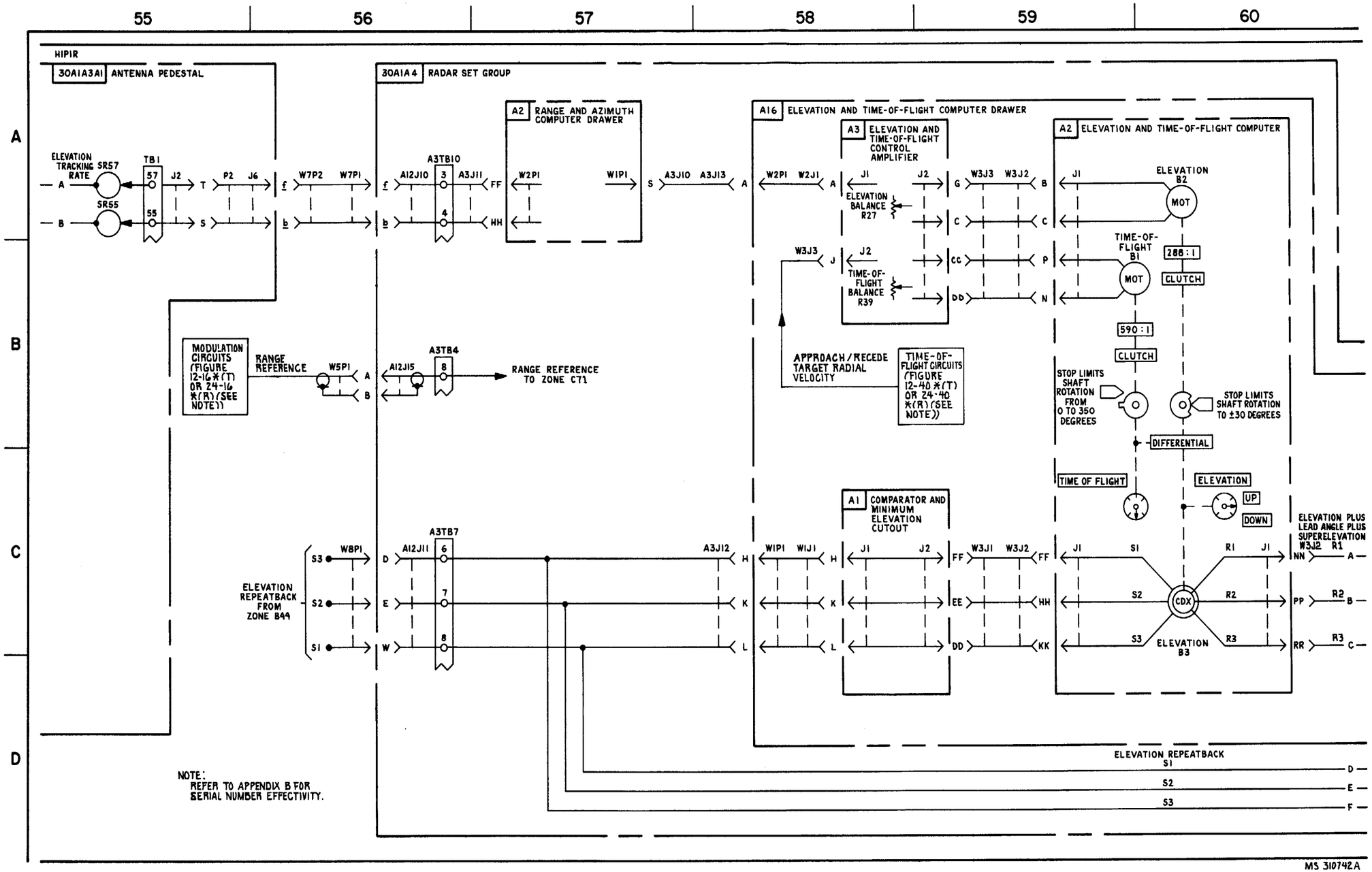


FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 10 OF 18).

7-37/7-38 blank

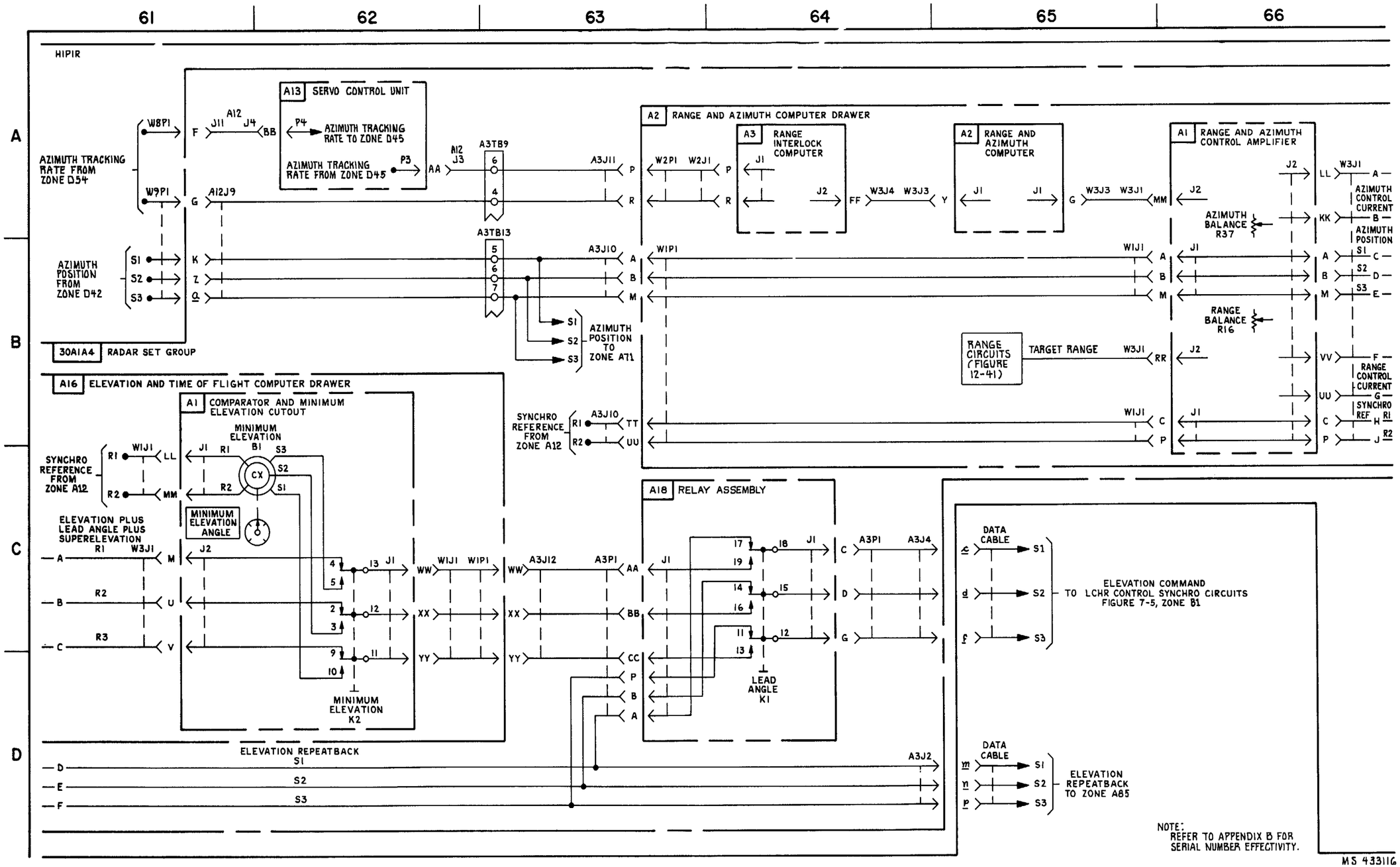


*FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS * (T) (SEE NOTE)-SYSTEM FUNCTIONAL DIAGRAM (SHEET 11 OF 18).*

7-39/7-40 blank

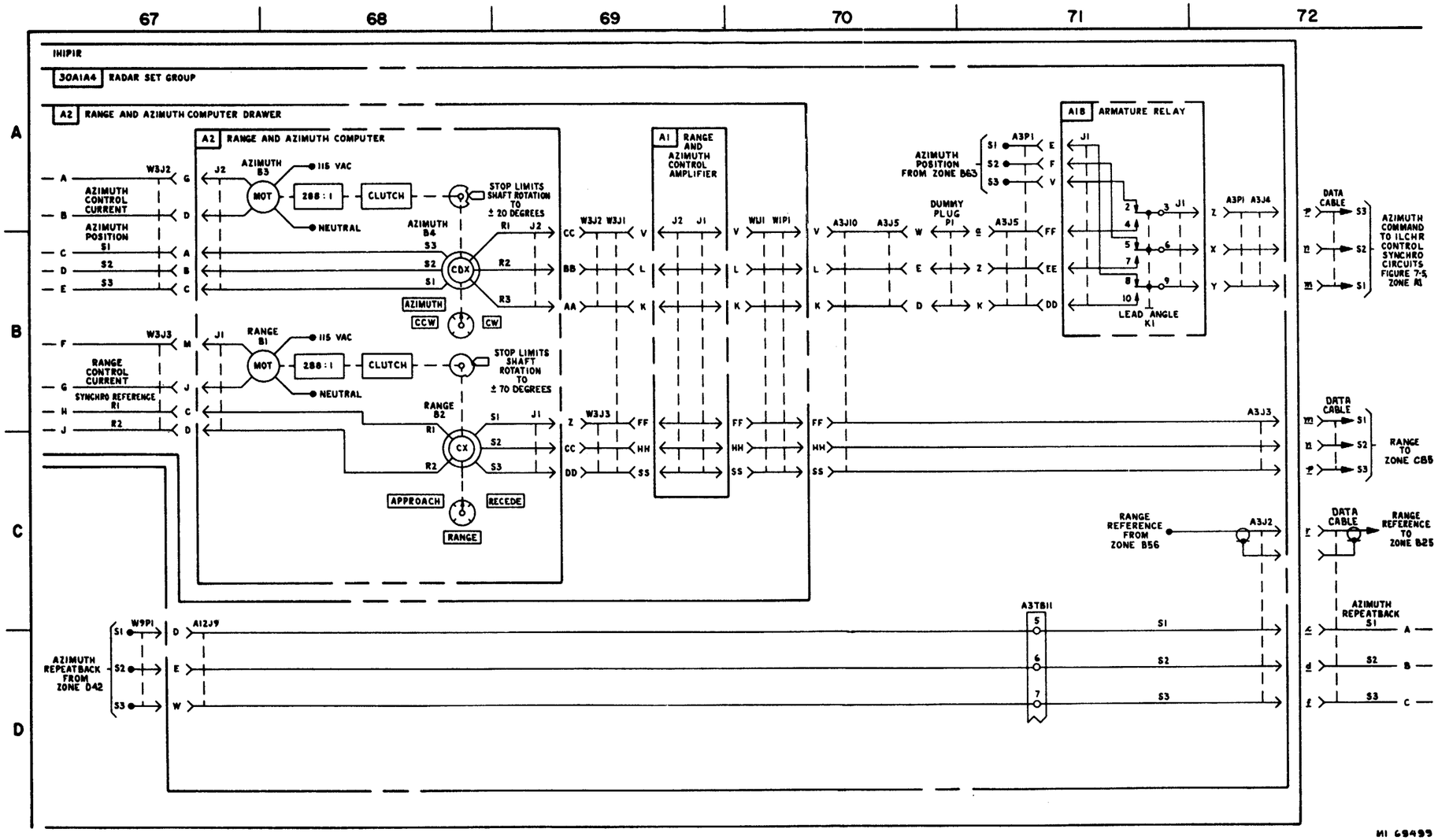


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 12 OF 18).

7-41/7-42 blank

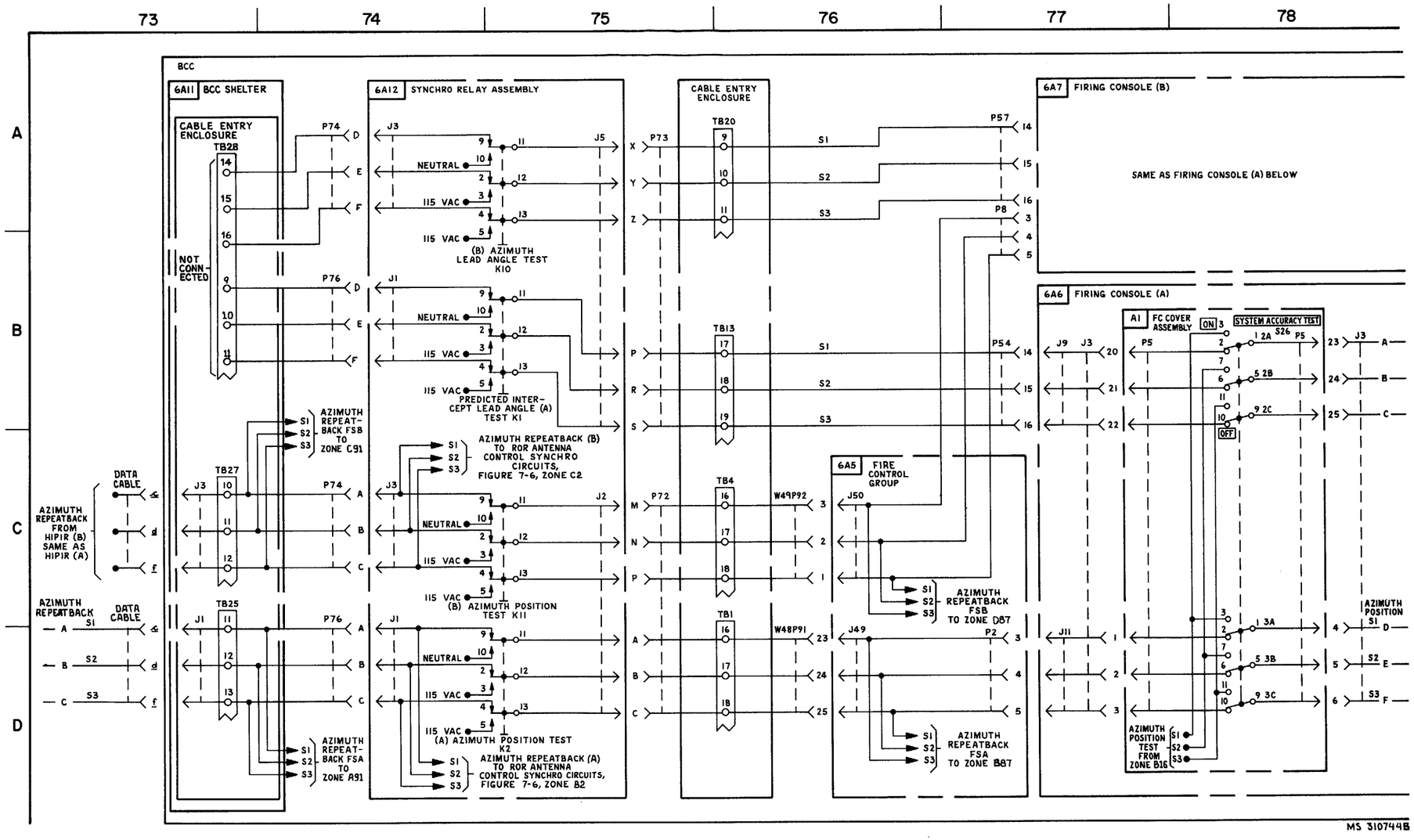


FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 13 OF I8).

7-43/7-44 blank

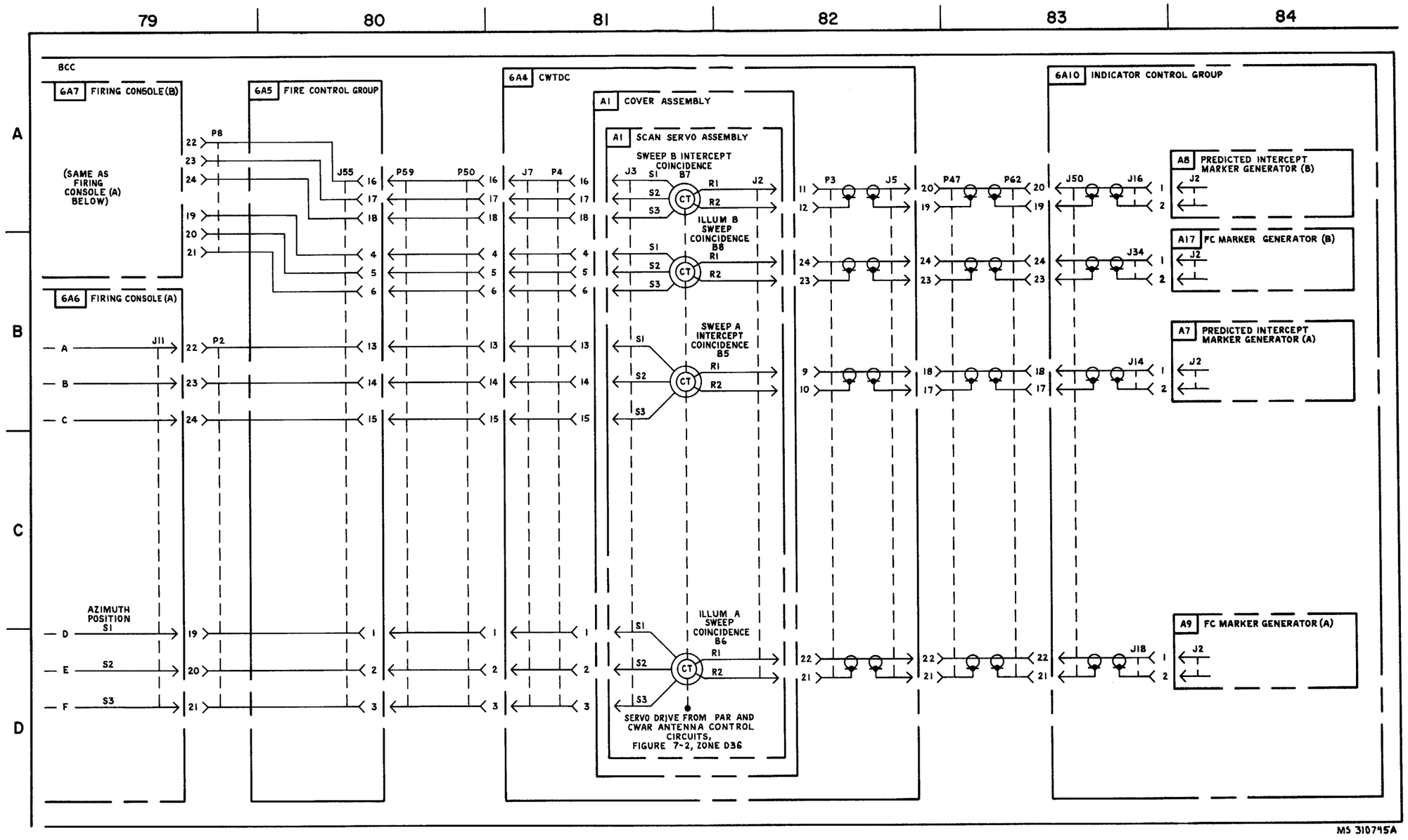


FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 14 OF 18)

7-45/7-46 blank

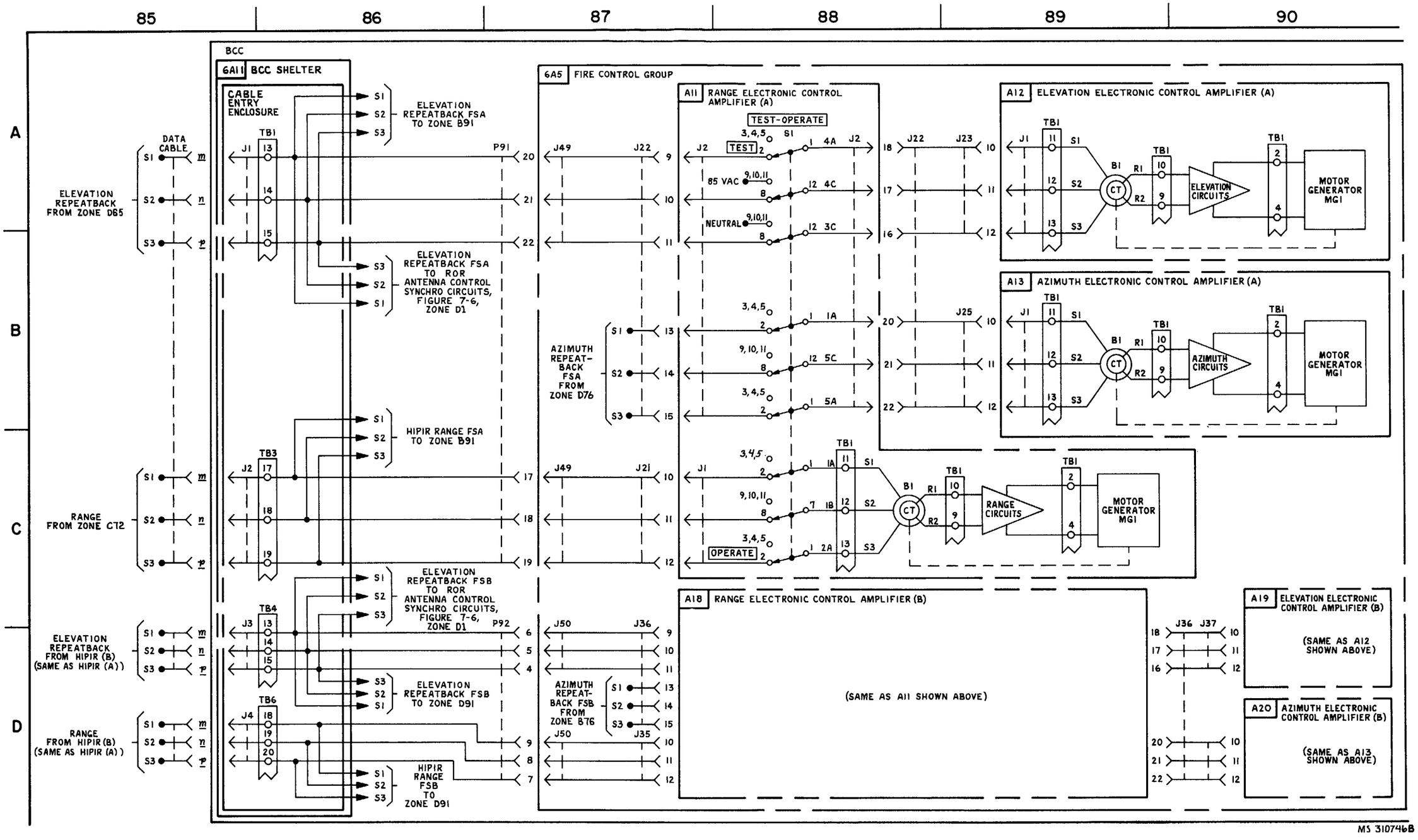


FIGURE 7-4. HIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 15 OF 18).

7-47/7-48 blank

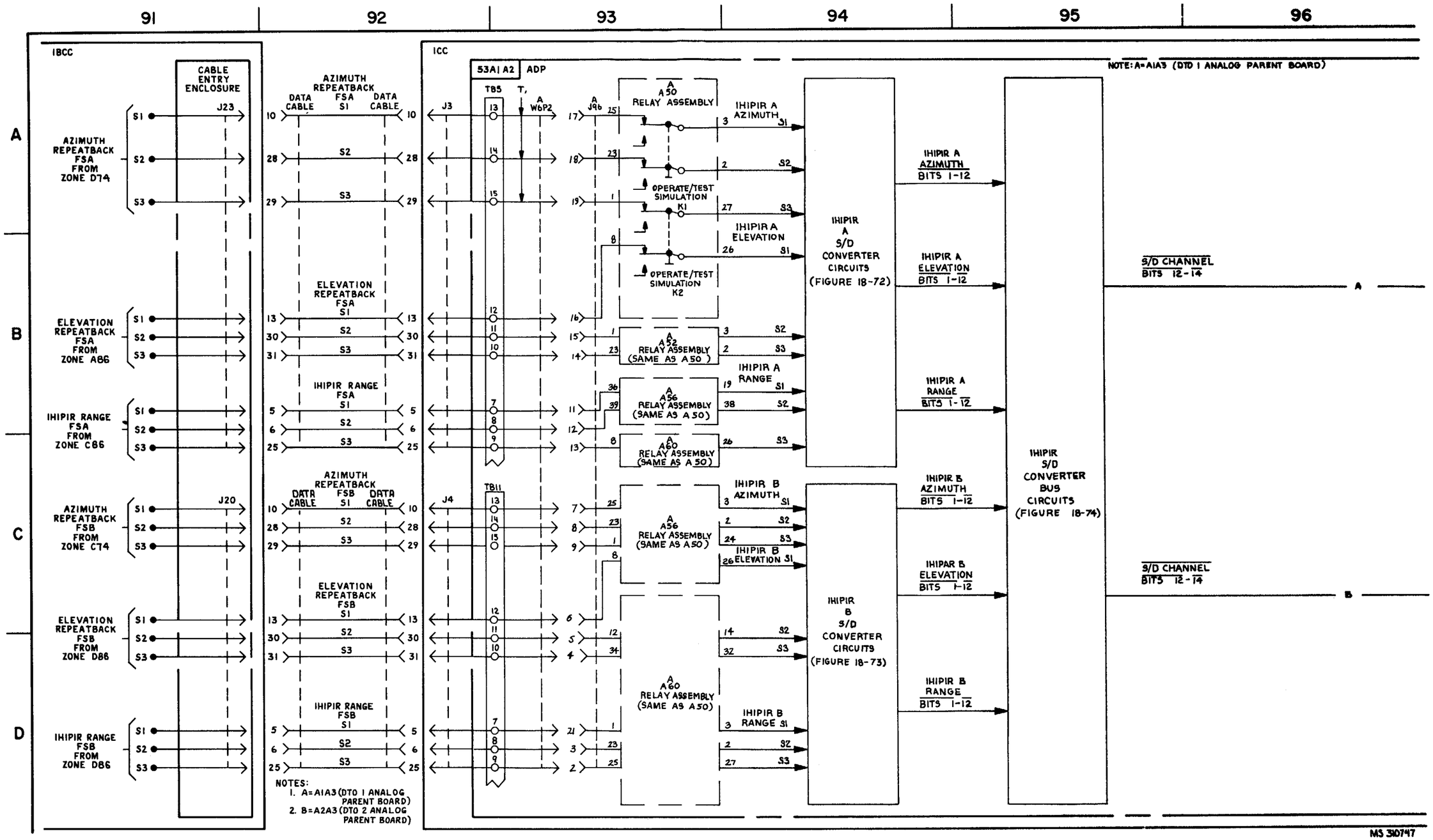


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 16 OF 18).

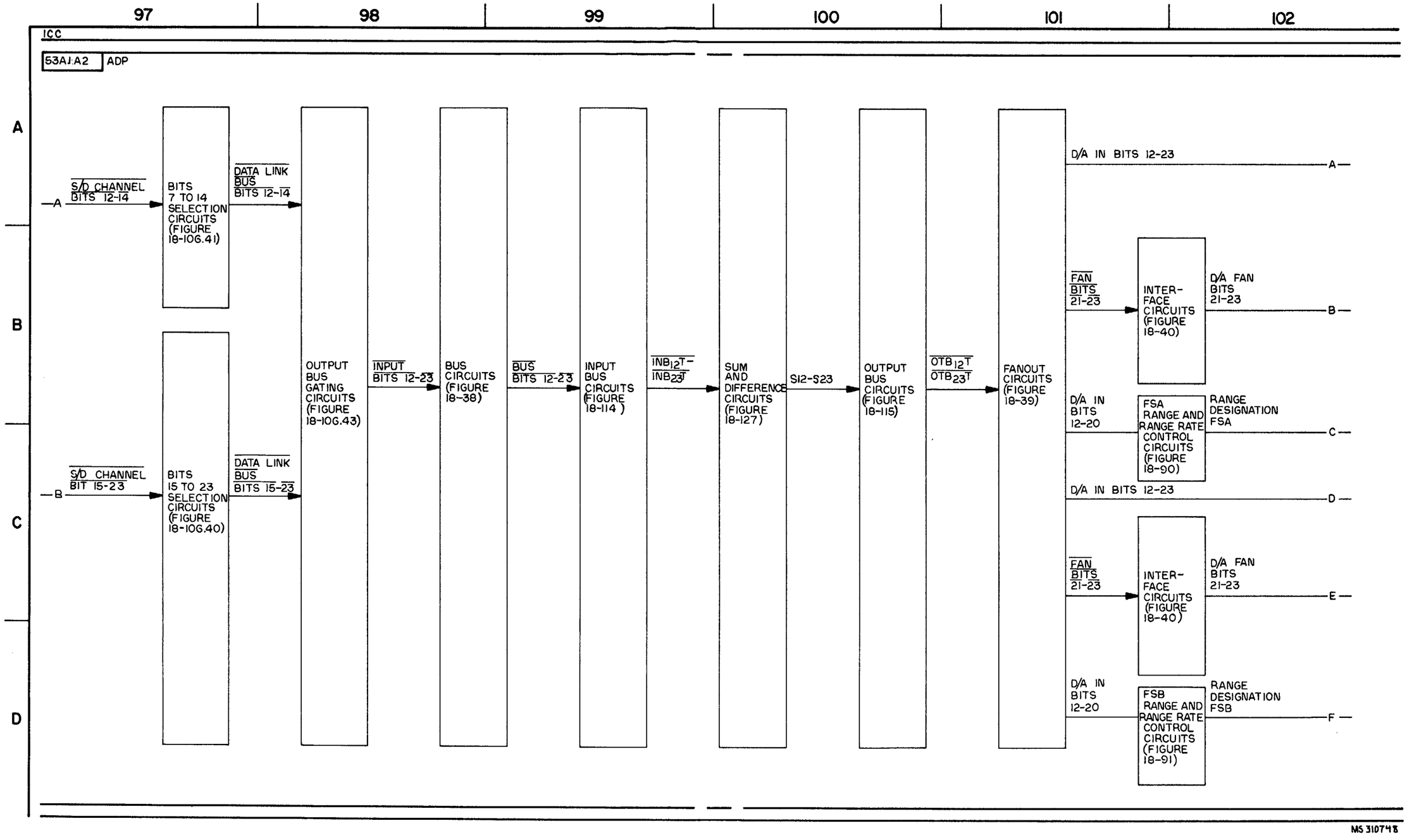


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 17 OF 18).

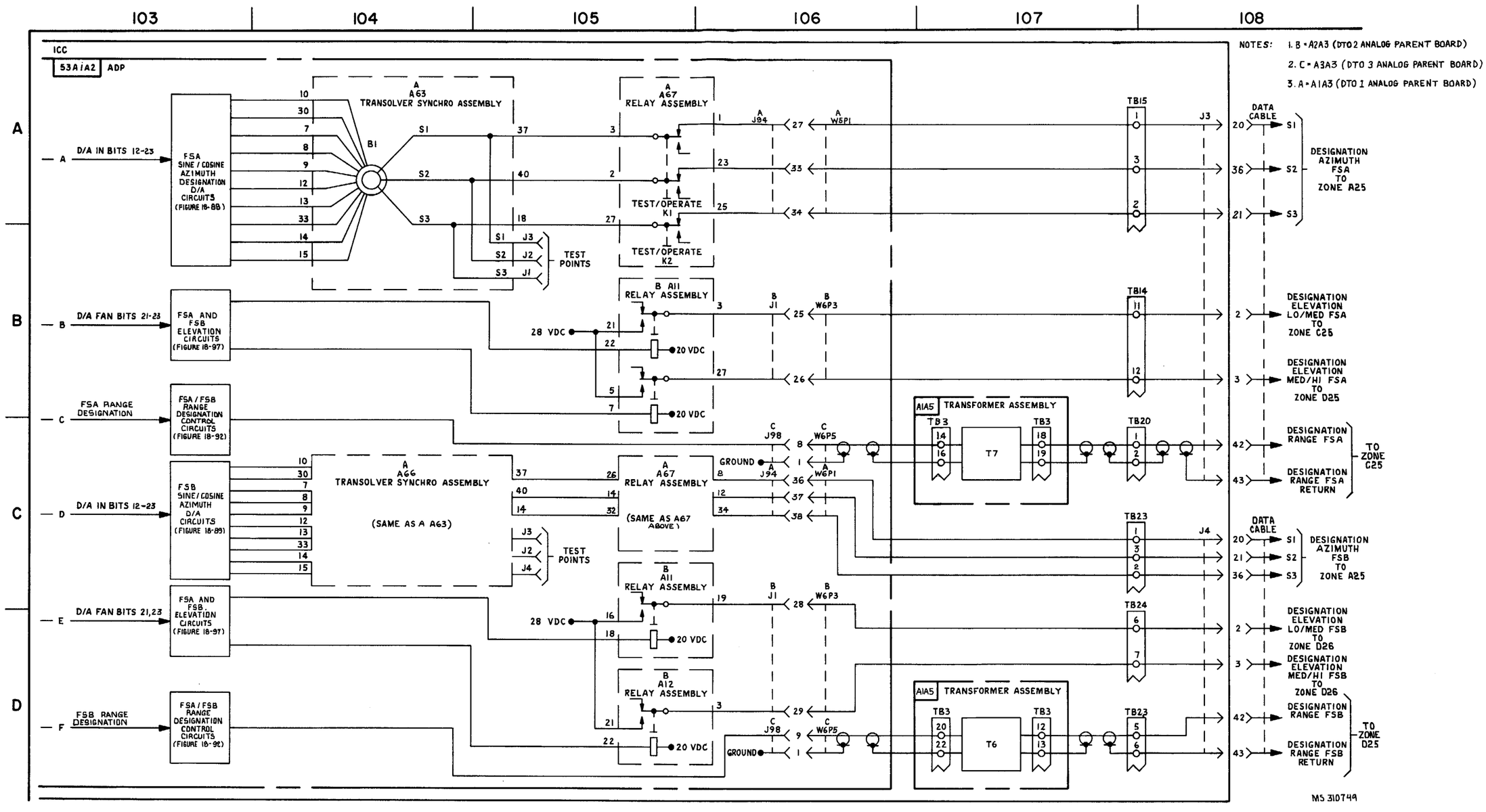


FIGURE 7-4. IHIPIR ANTENNA CONTROL AND TARGET INFORMATION SYNCRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 18 OF 18).

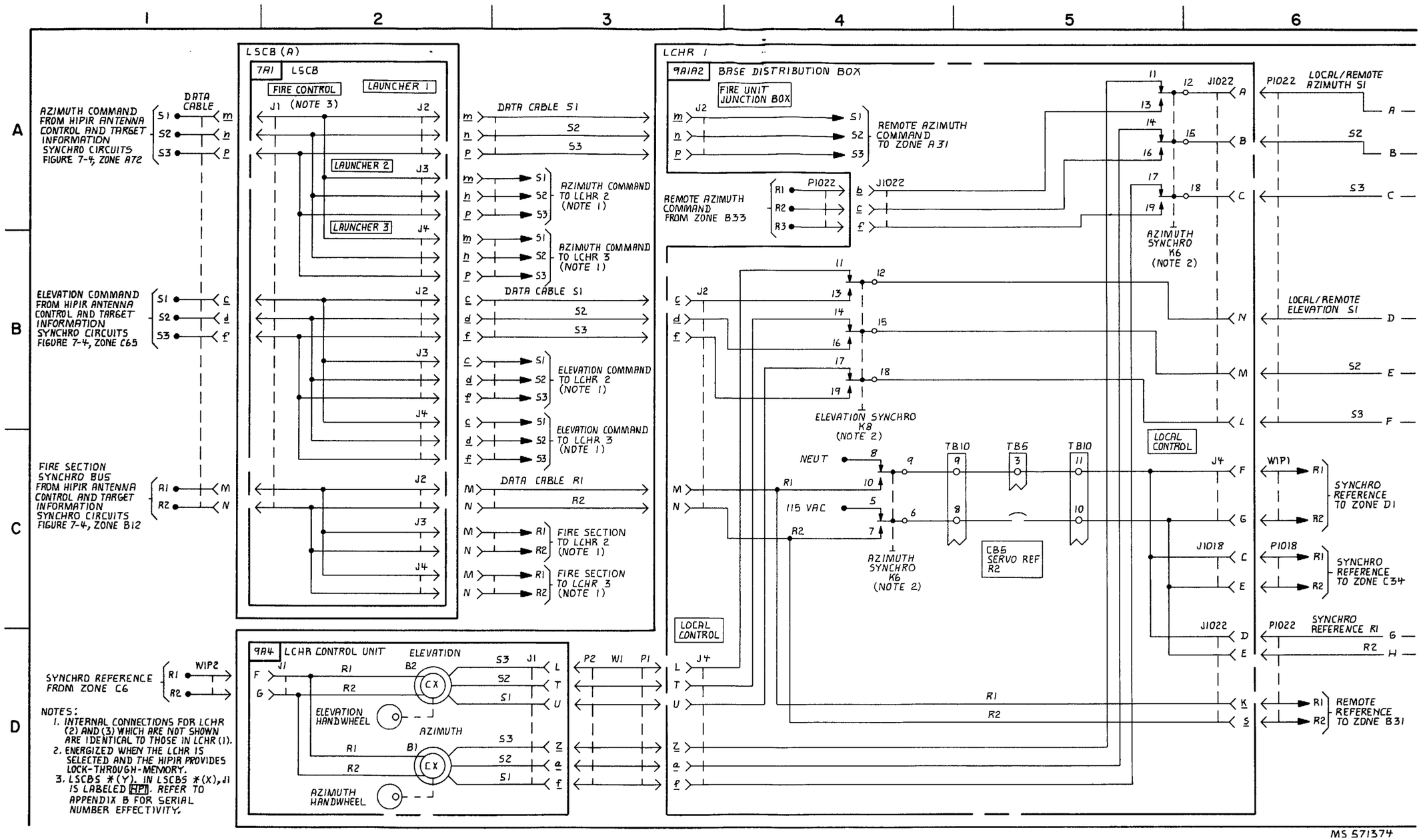


FIGURE 7-5. LCHR CONTROL SYNCHRO CIRCUITS- SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 6).

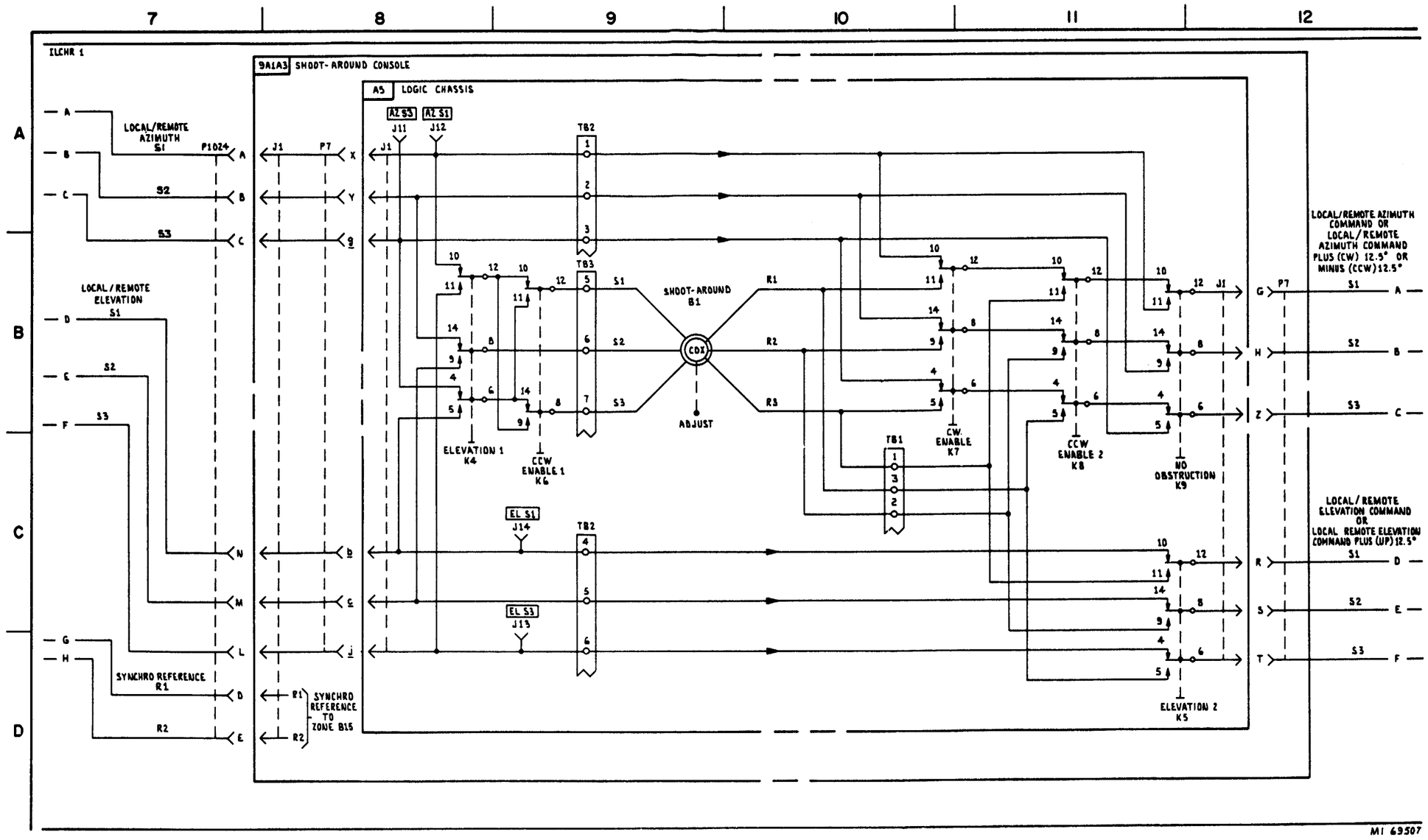


FIGURE 7-5. ILCHR CONTROL SYNCRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 6)

7-55/7-56 blank

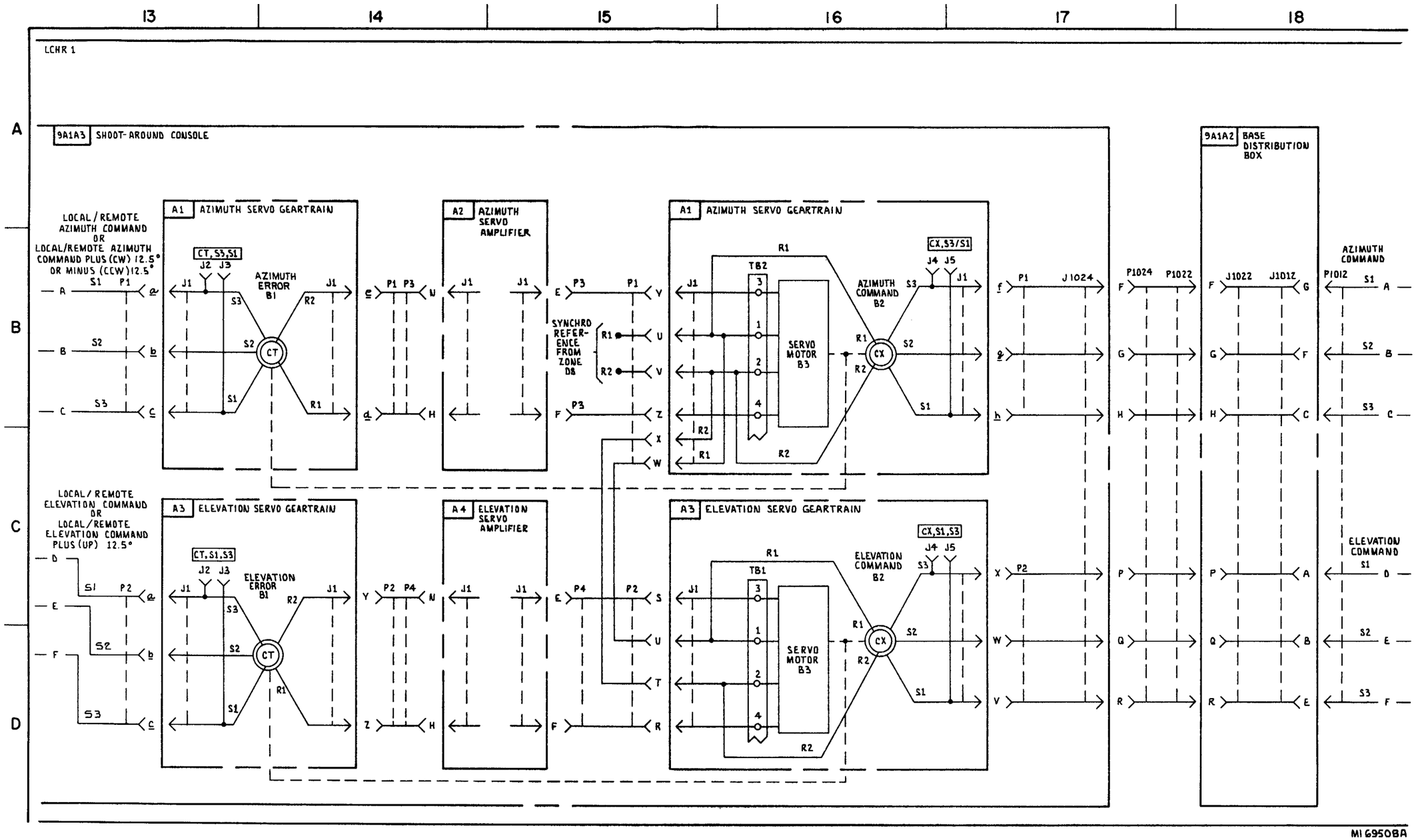


FIGURE 7-5. LCHR CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 6).

7-57/7-58 blank

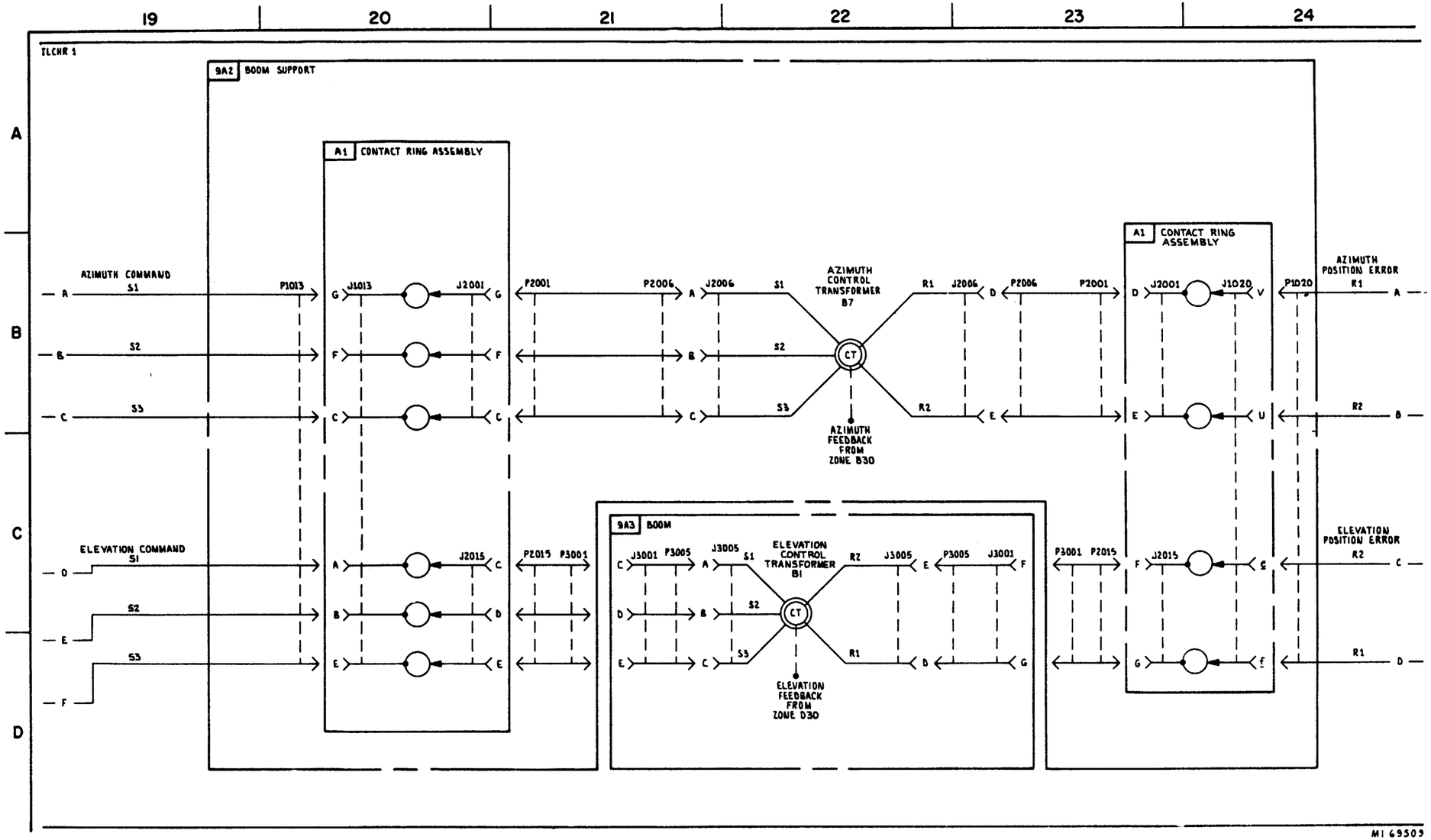


FIGURE 7-5. ILCHIR CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIGRAM (SHEET 4 OF 6)

7-59/7-60 blank

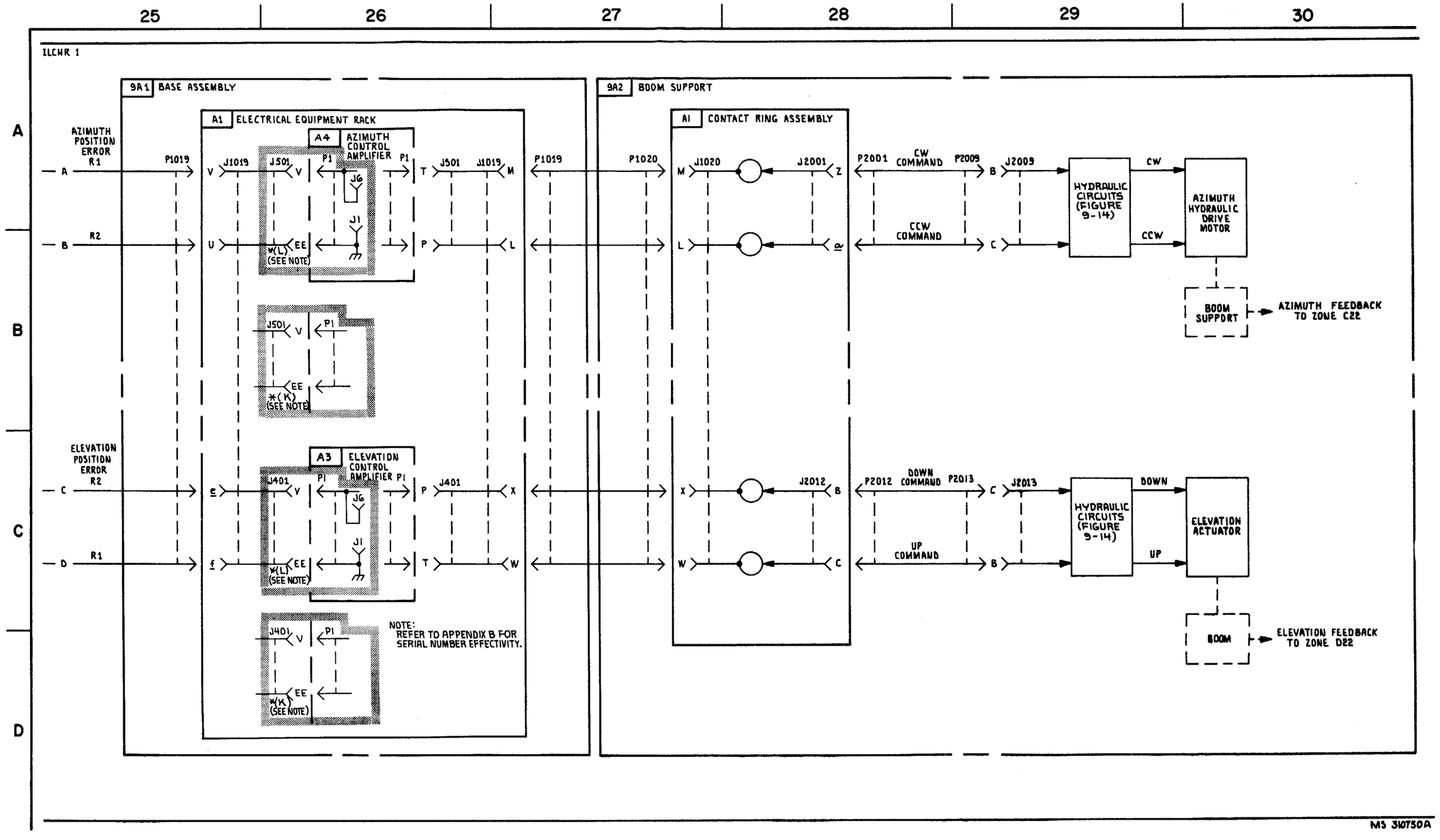


FIGURE 7-5. ILCHR CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 6)

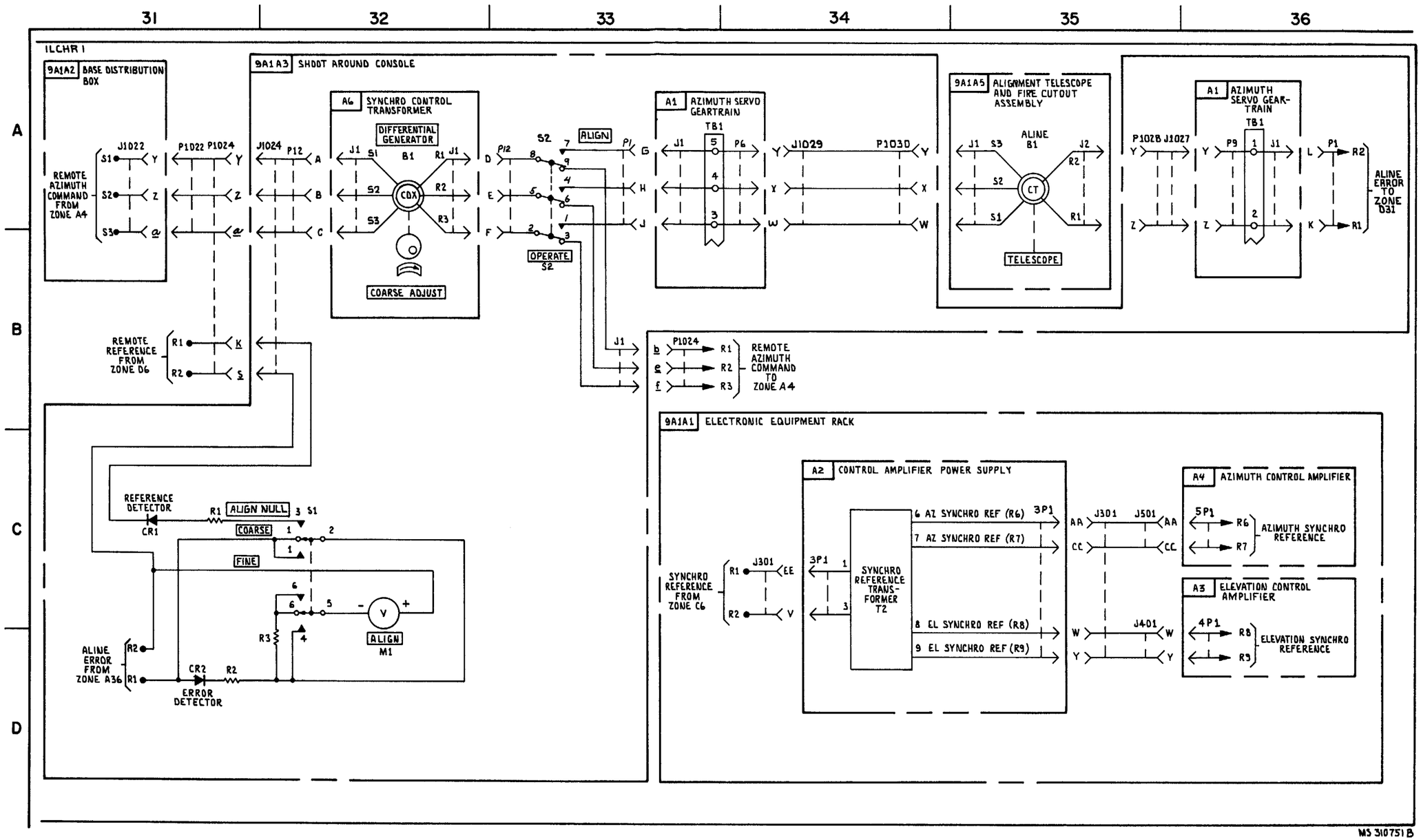


FIGURE 7-5. ILCHR CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 6 OF 6)

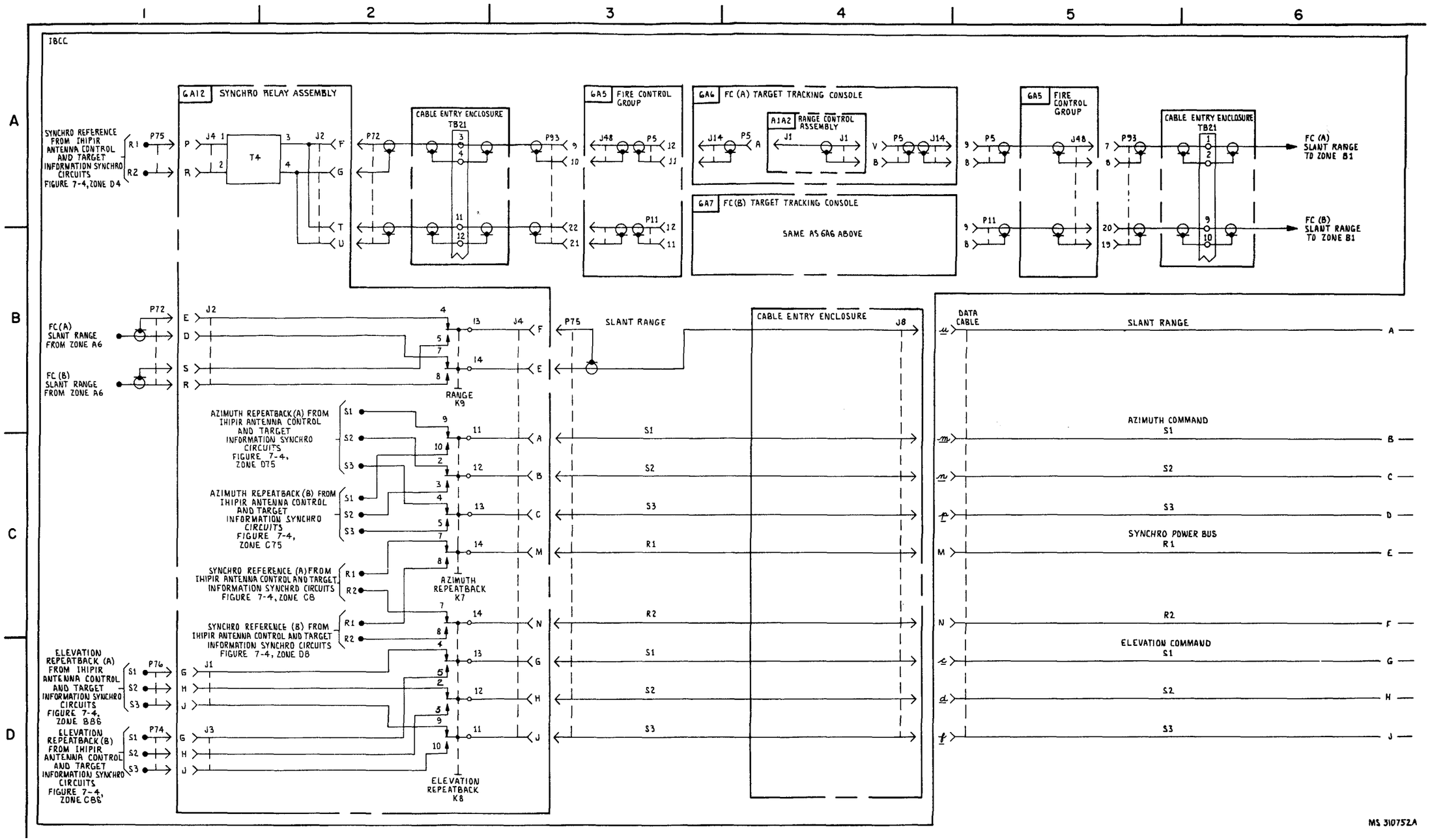


FIGURE 7-6. IROR ANTENNA CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 1 OF 9)

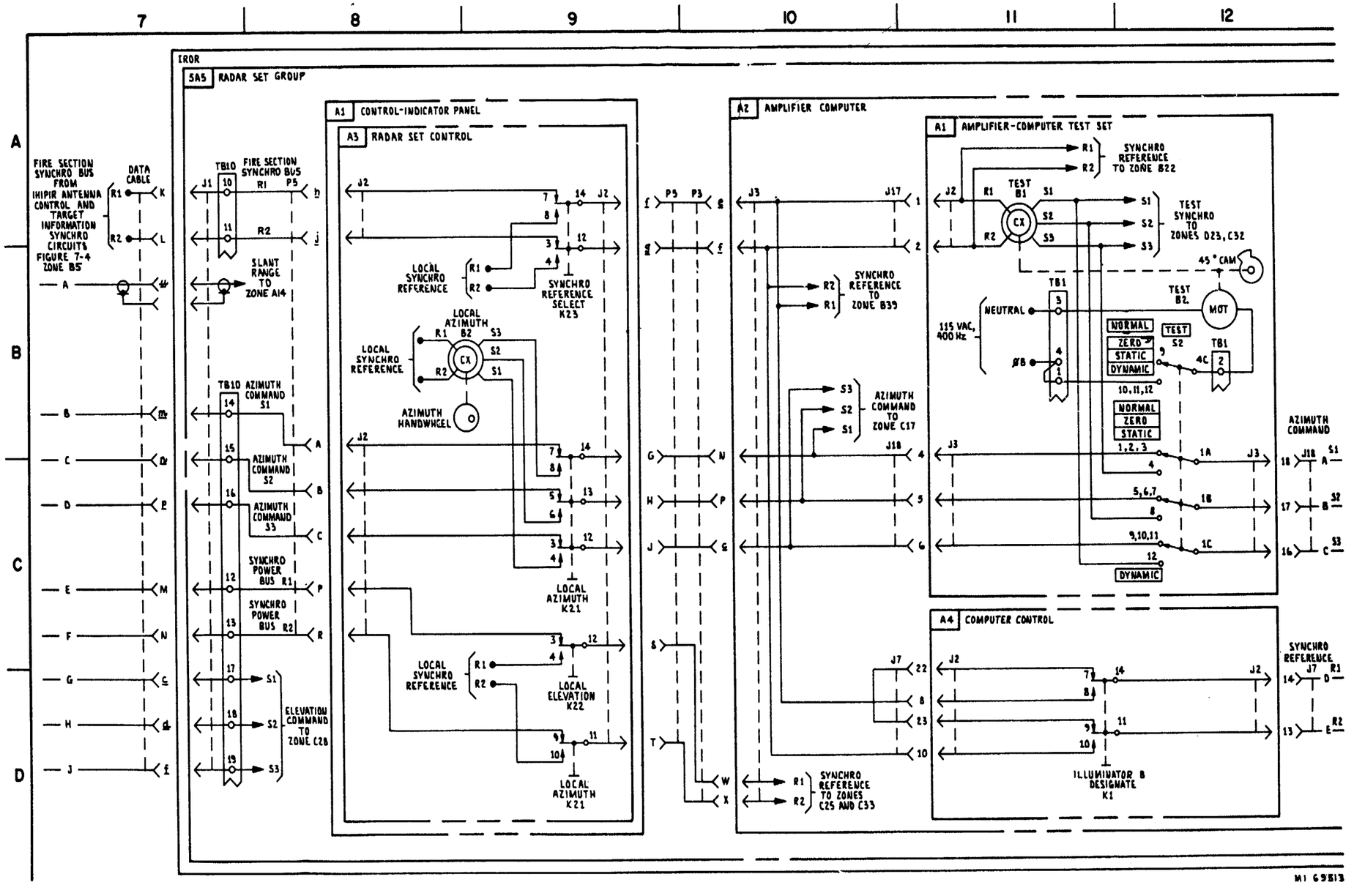


FIGURE 7-6. IROR ANTENNA CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 9).

7-65/7-66 blank

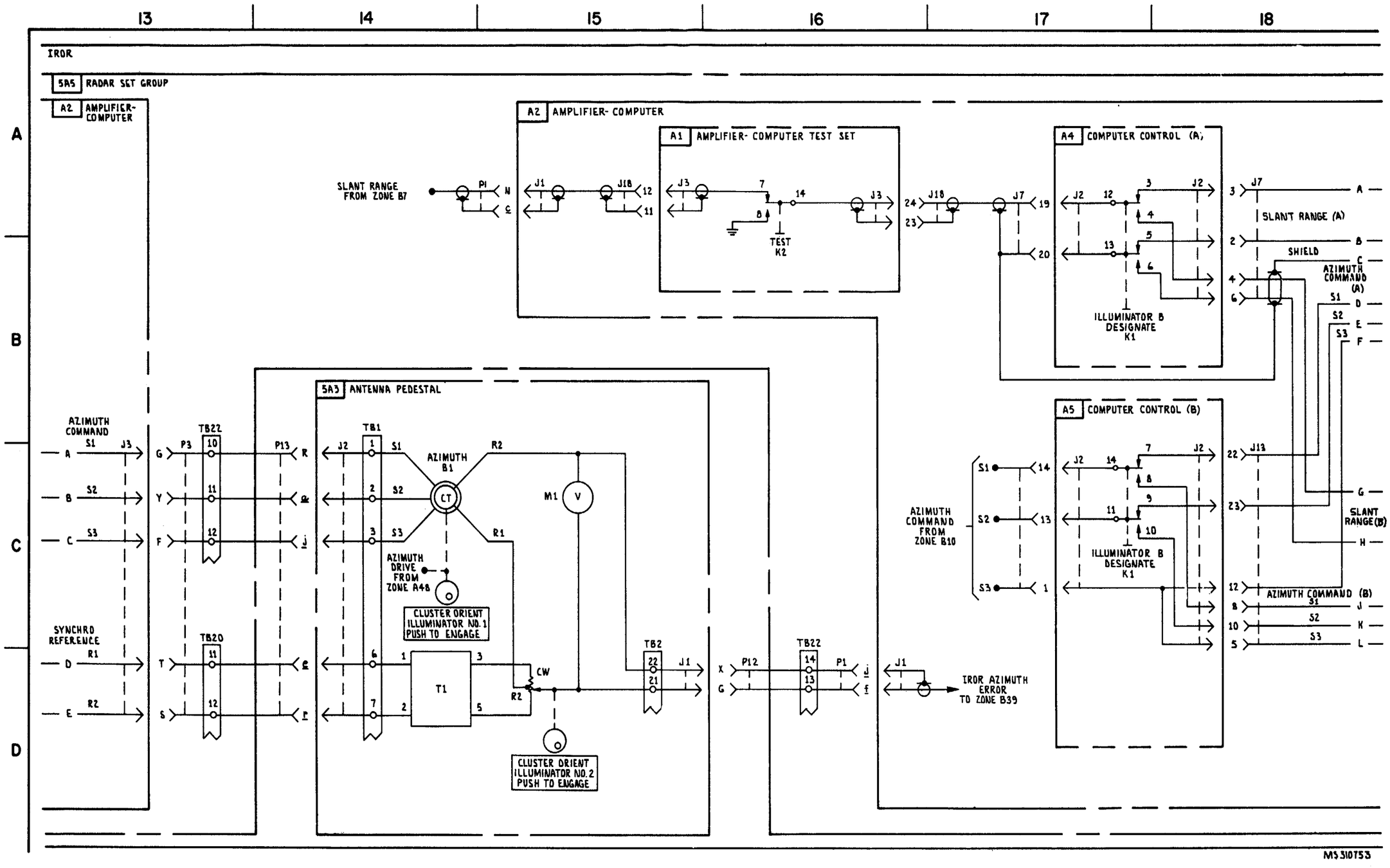


FIGURE 7-6. IROR ANTENNA CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 9).

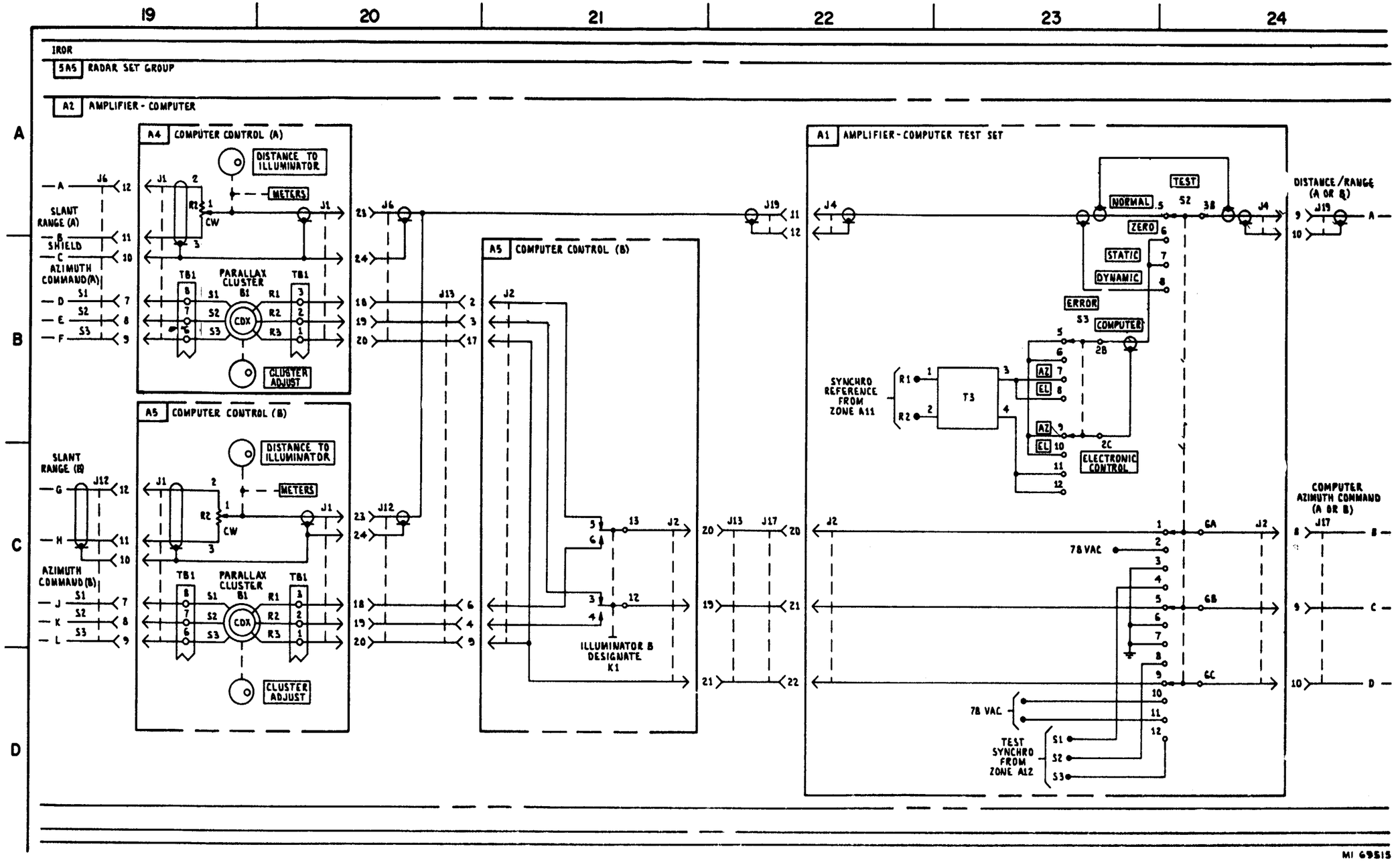


FIGURE 7-6. IROR ANTENNA CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 4 OF 9)

7-69/7-70 blank

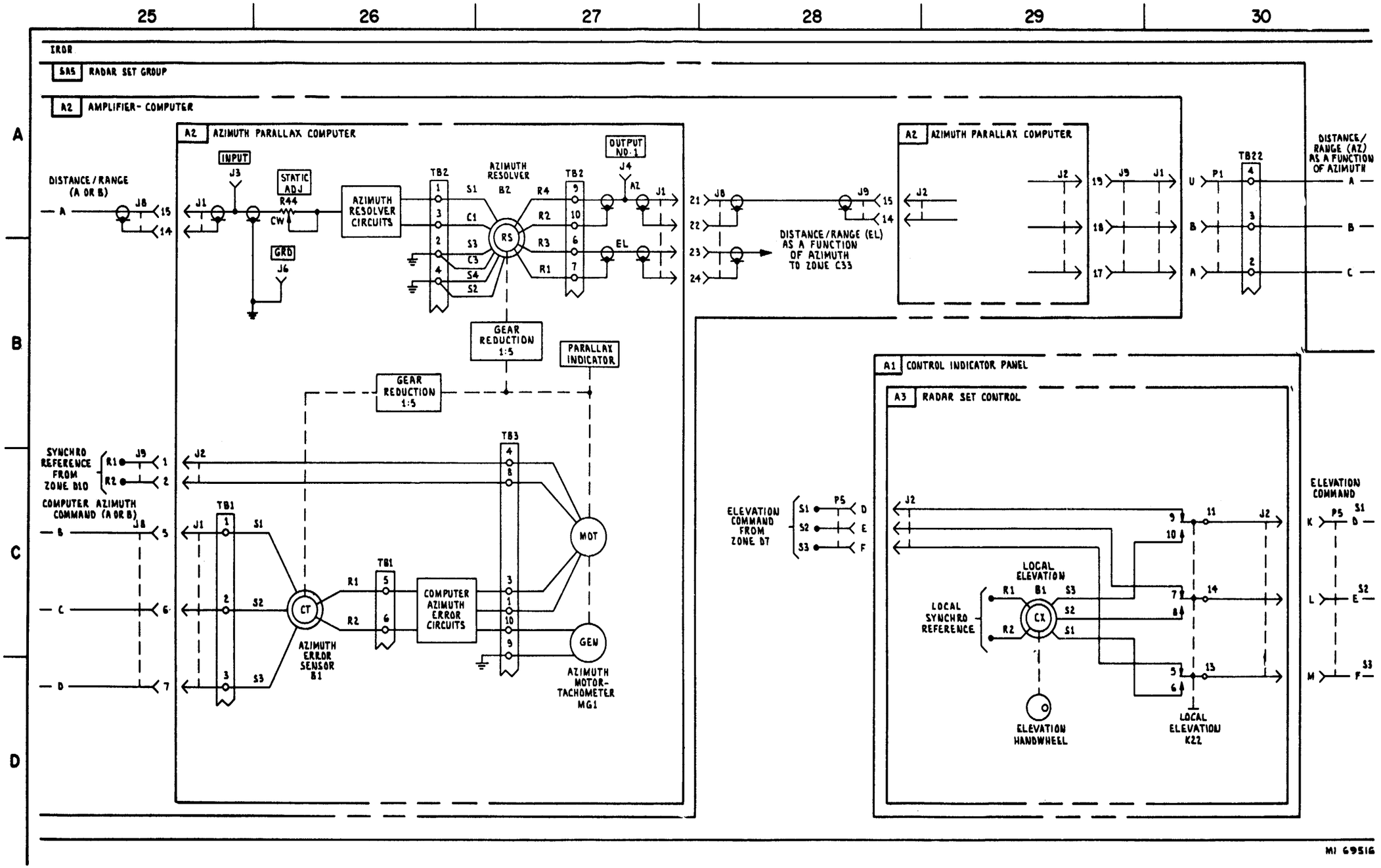


FIGURE 7-6. IROR ANTENNA CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 5 OF 9).

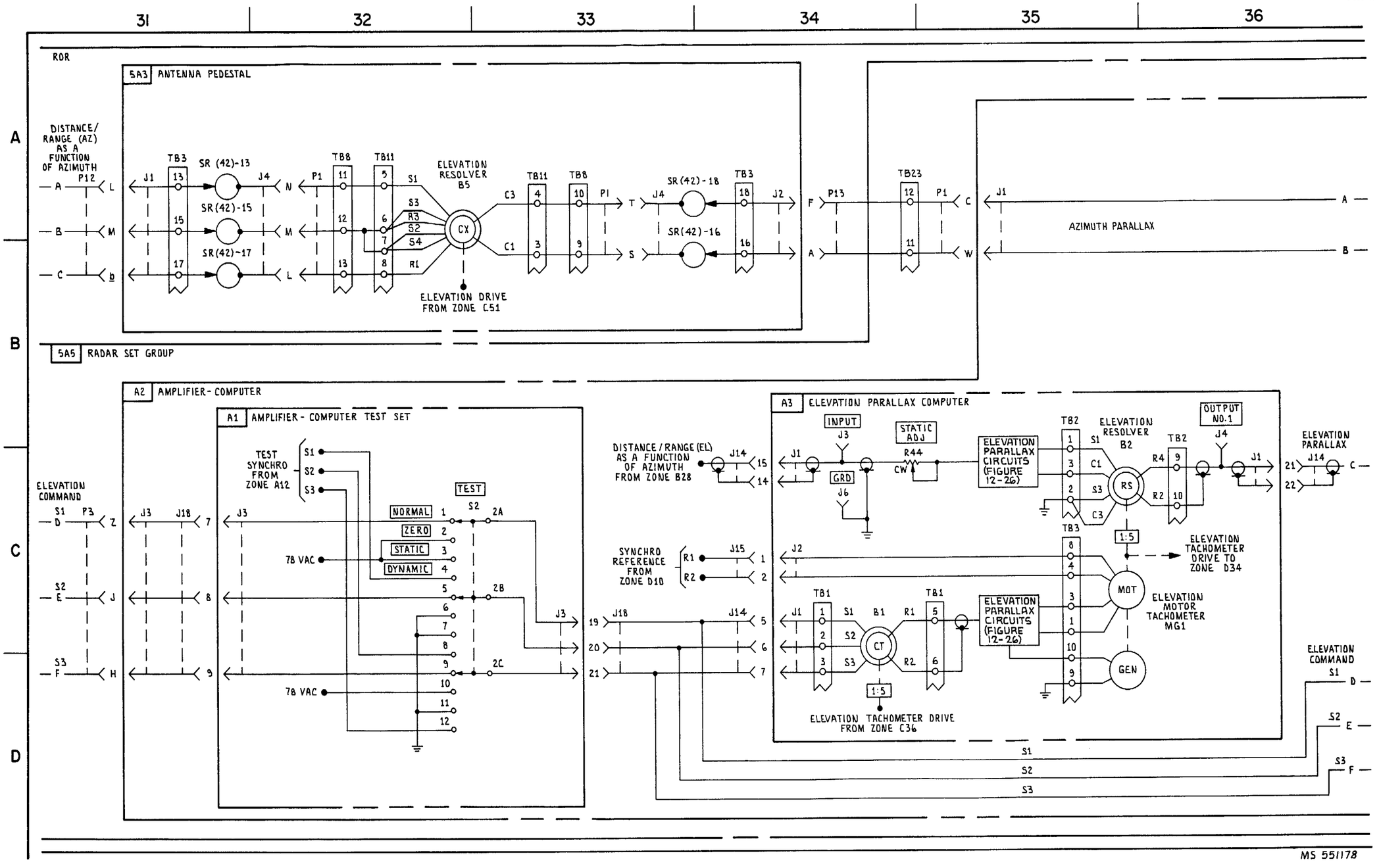


FIGURE 7-6. RDR ANTENNA CONTROL SYCHRO CIRCUITS - SYSTM FUNCTIONAL DIAGRAM (SHEET 6 OF 9).

7-73/7-74 blank

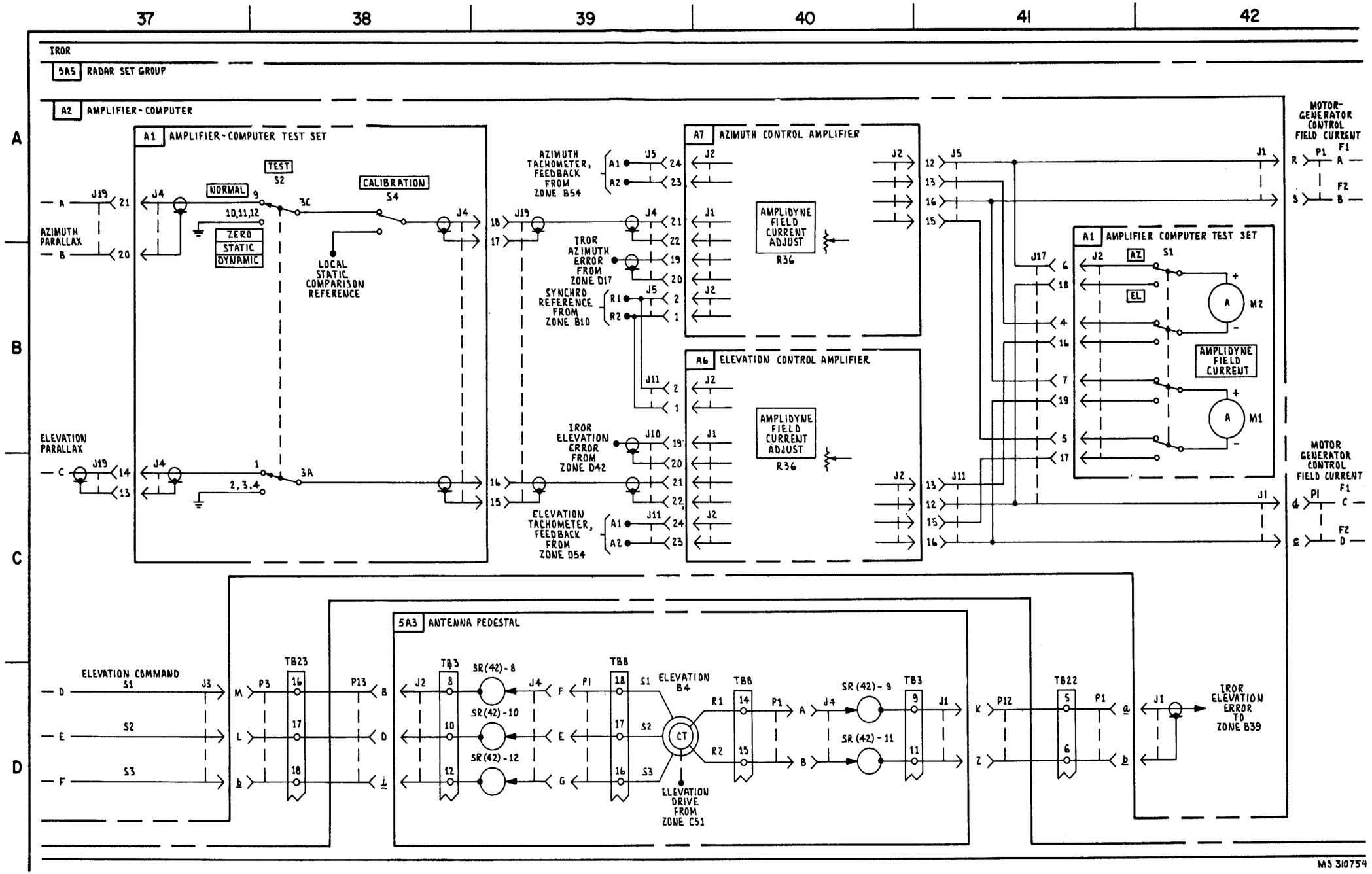


FIGURE 7-6. IROR ANTENNA CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 7 OF 9)

7-75/7-76 blank

C11

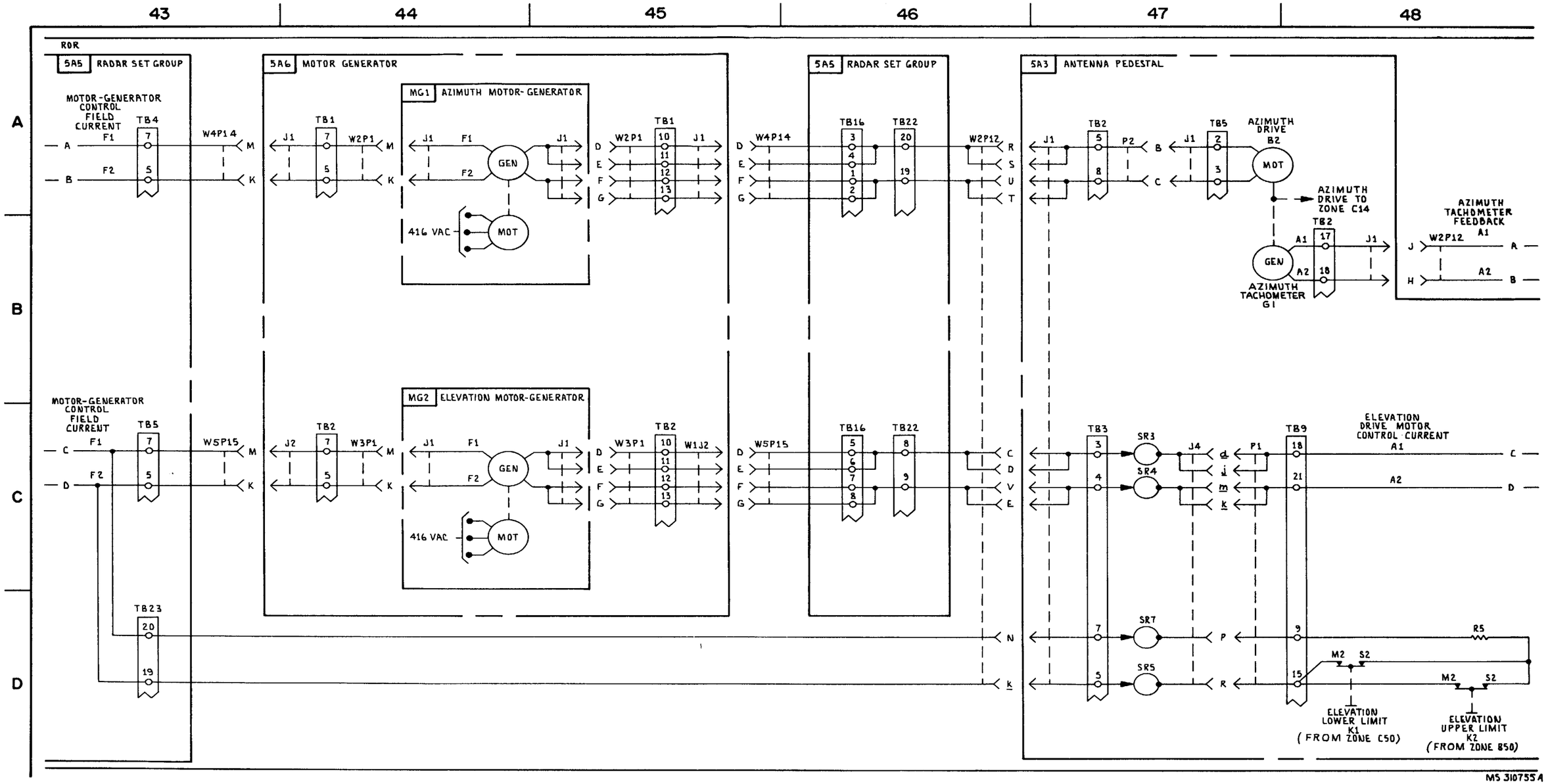


FIGURE 7-6. ROR ANTENNA CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 8 OF 8).

7-77/-78 blank

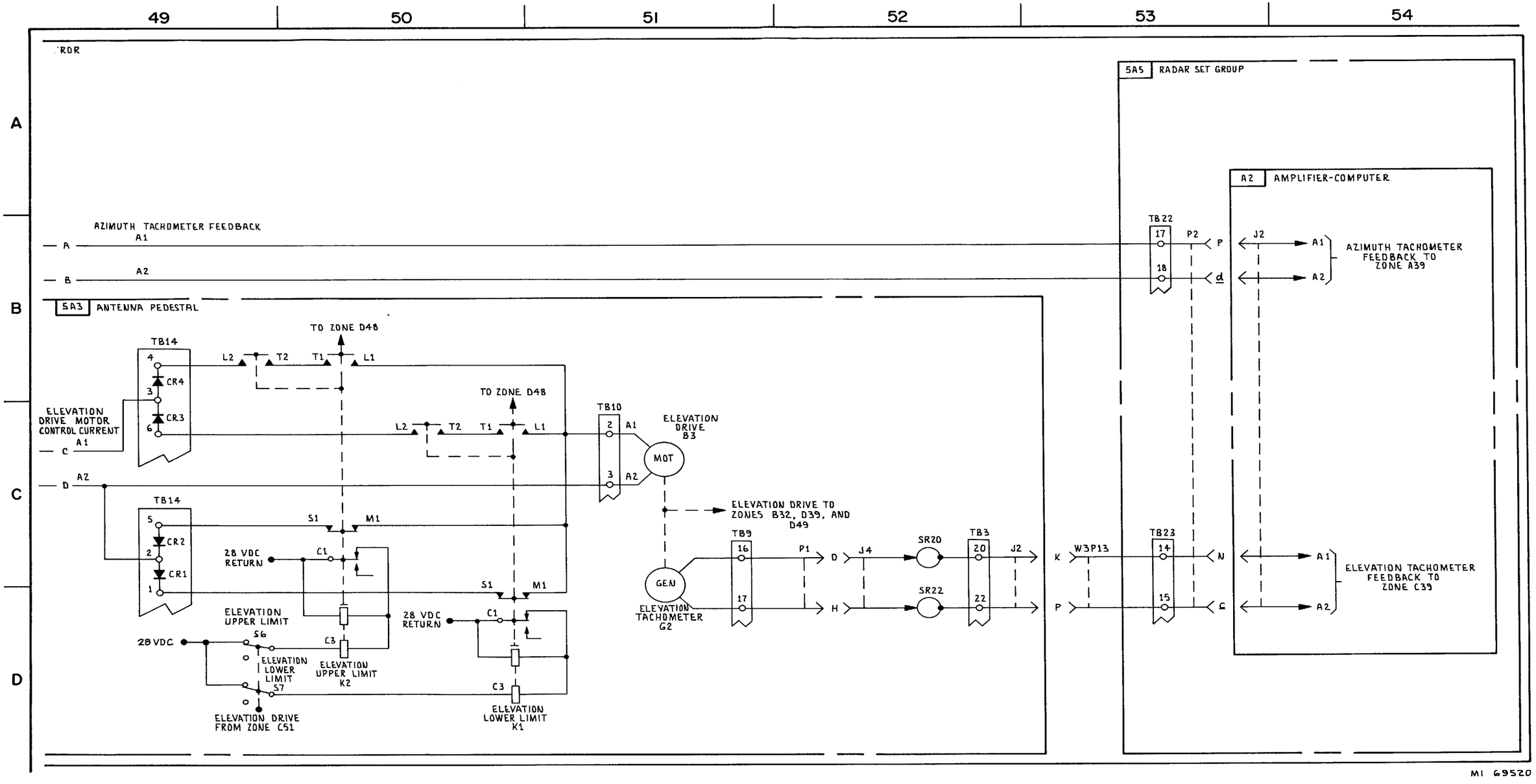


FIGURE 7-6. ROR ANTENNA CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (SHEET 9 OF 9).

C8

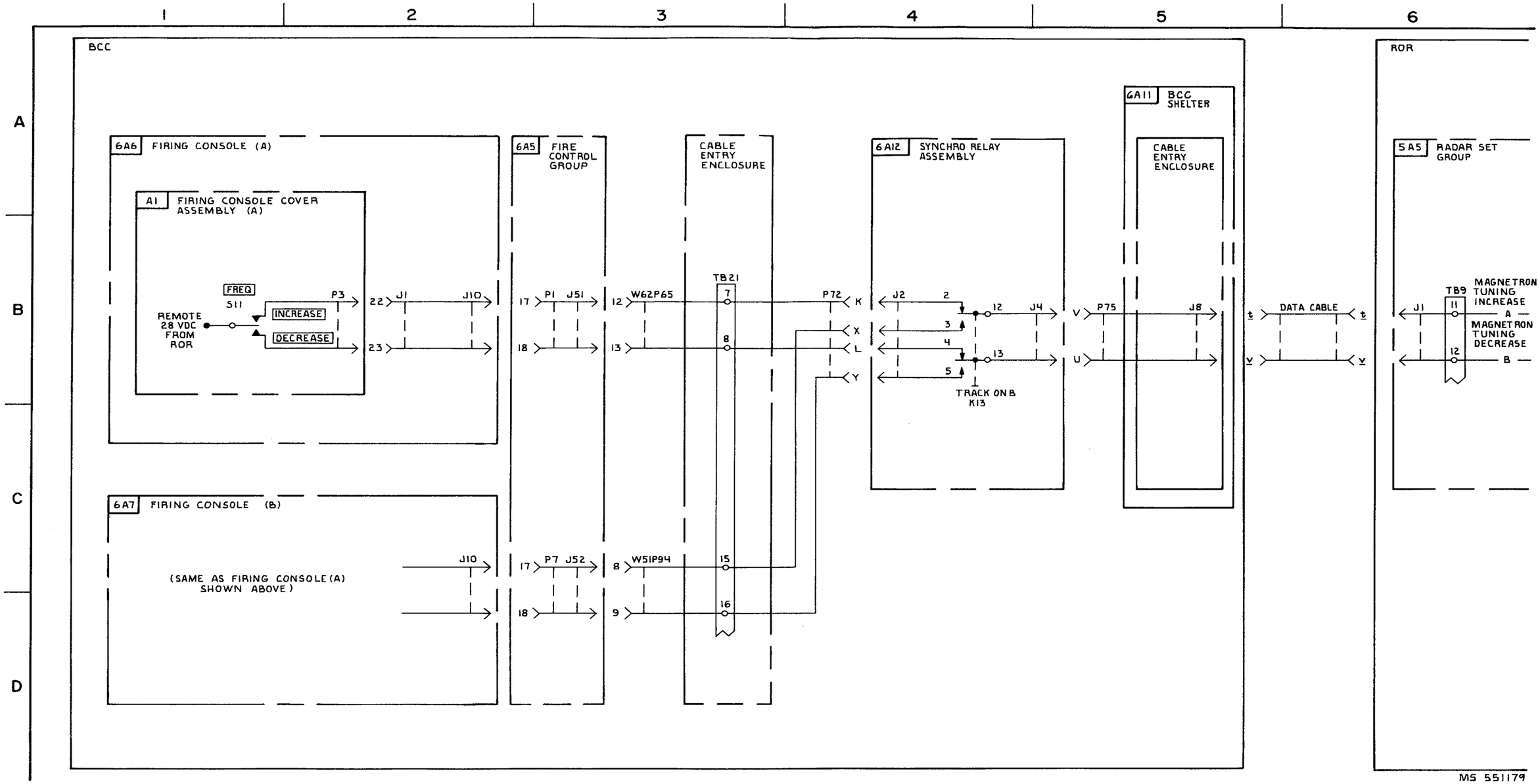


FIGURE 7-7. ROR FREQUENCY CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 1OF4).

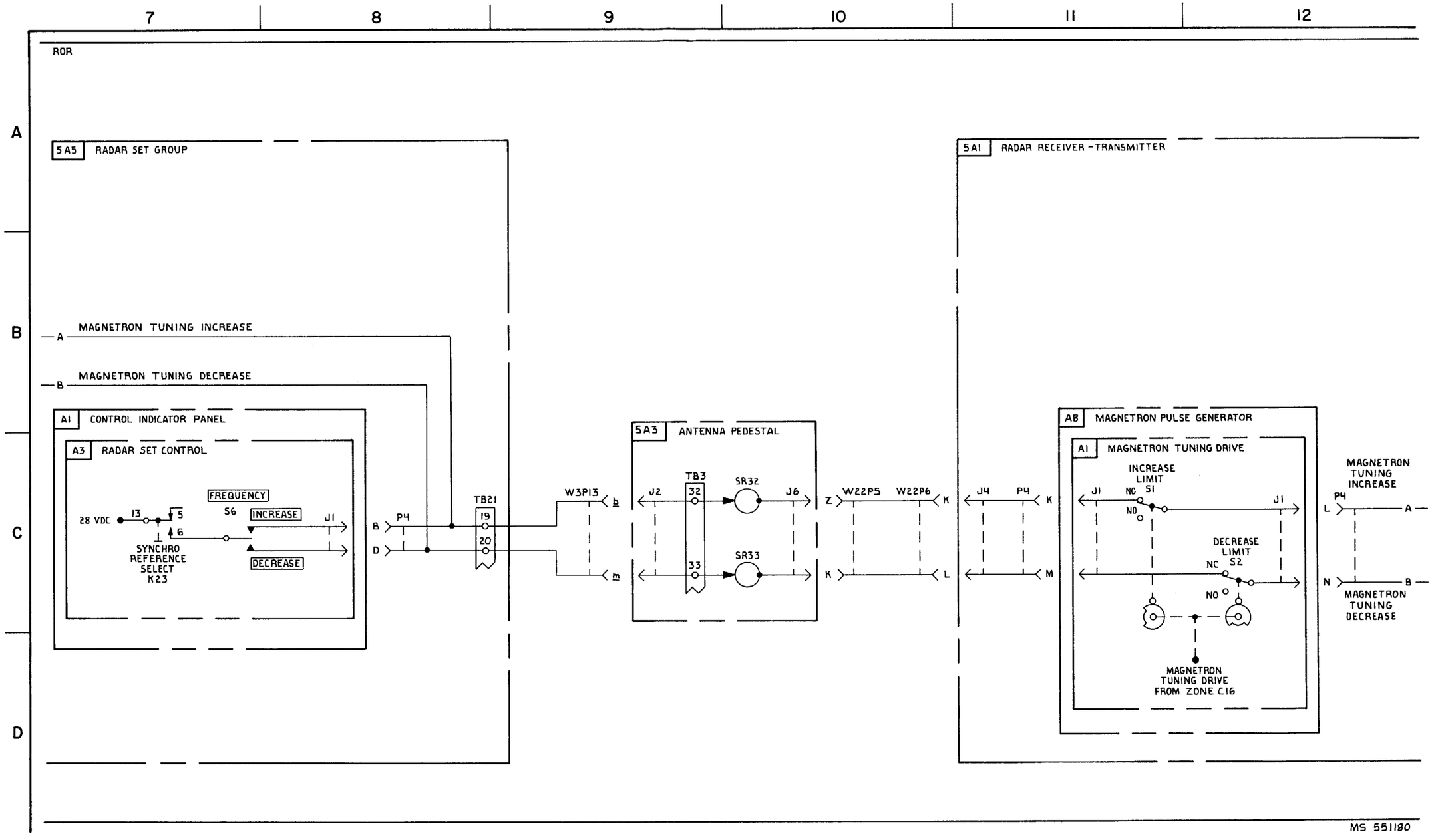


FIGURE 7-7. ROR FREQUENCY CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 2 OF 4).

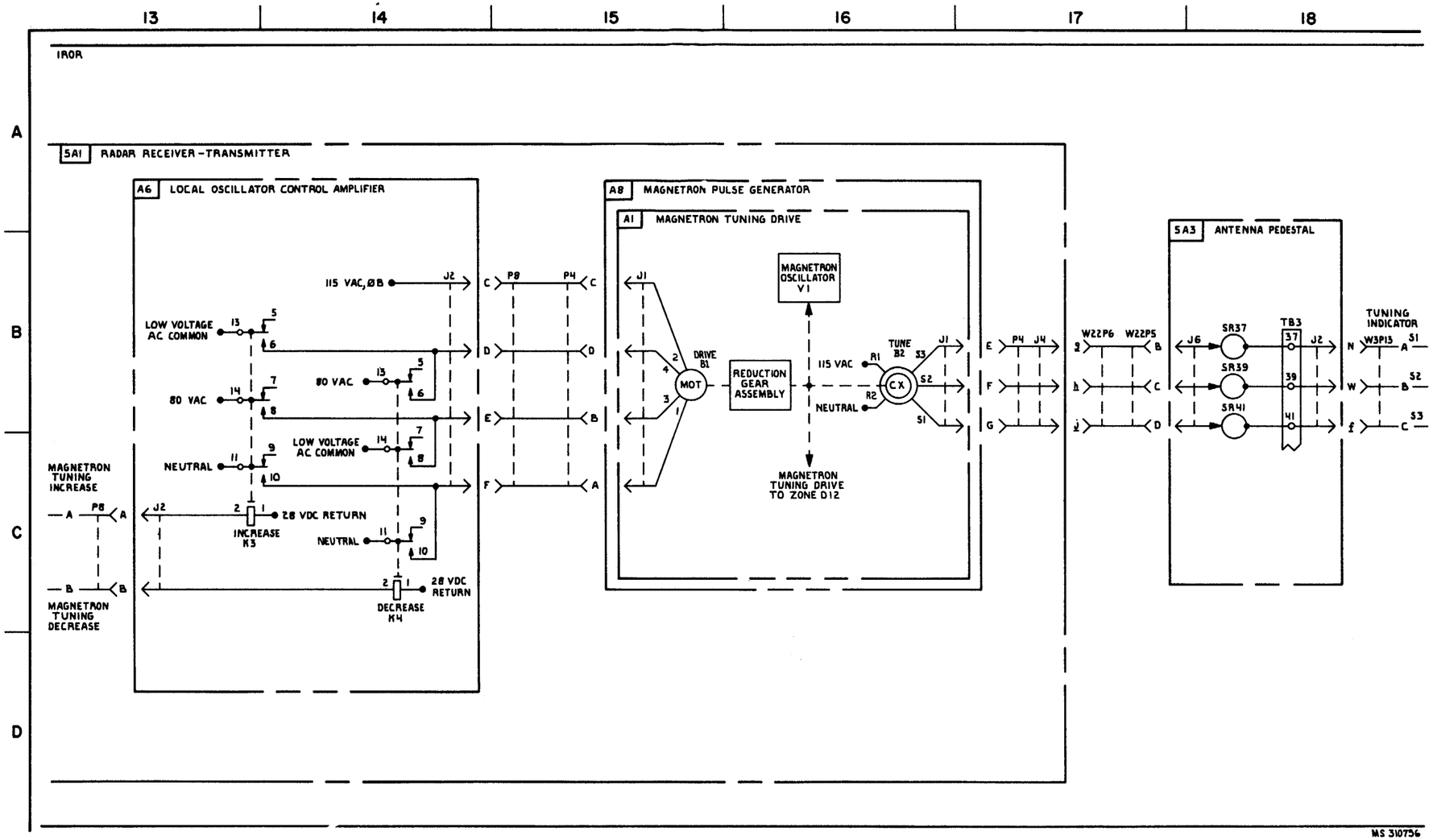


FIGURE 7-7. IROR FREQUENCY CONTROL SYNCHRO CIRCUITS-SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 4).

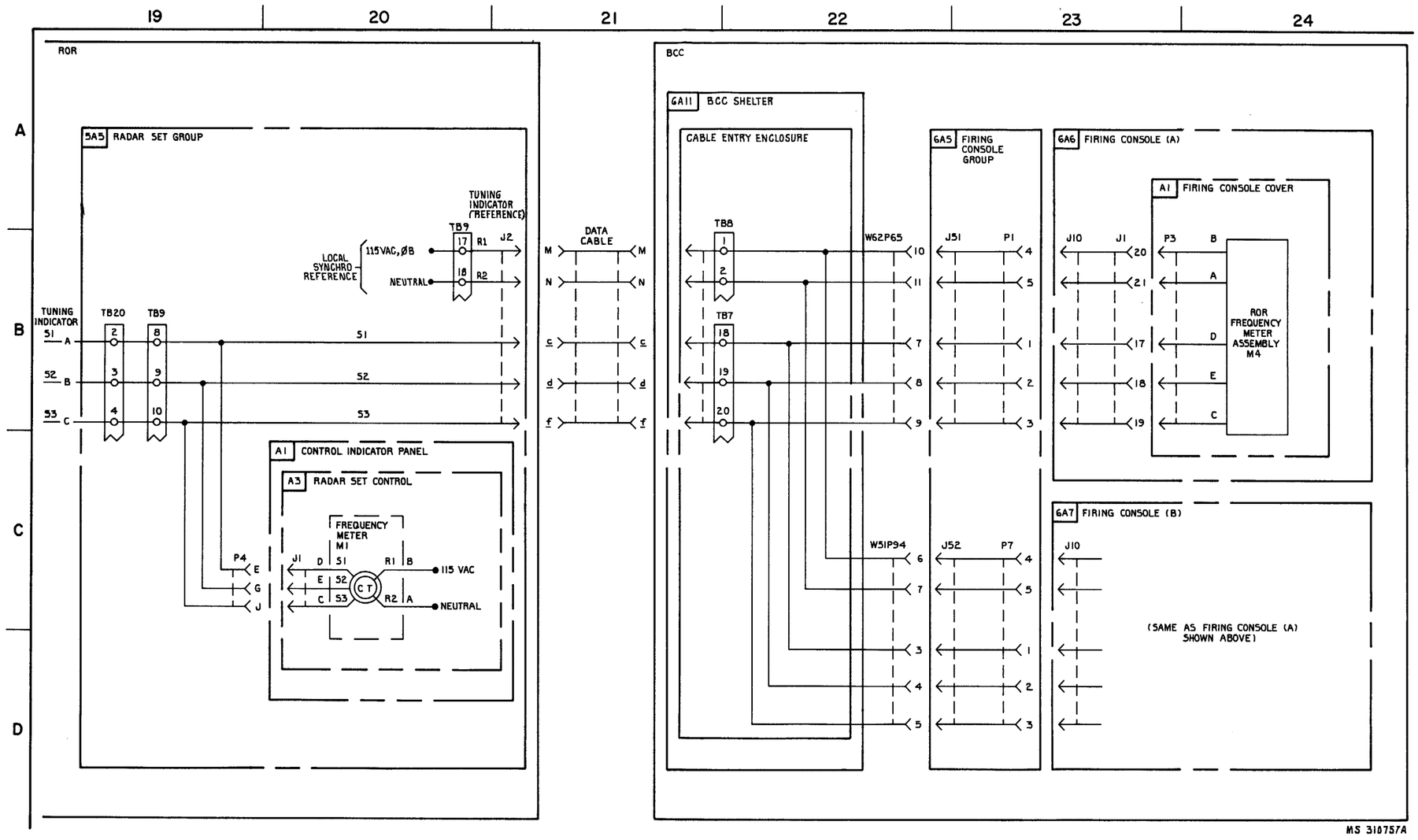


FIGURE 7-7. ROR FREQUENCY CONTROL SYNCHRO CIRCUITS - SYSTEM FUNCTIONAL DIAGRAM (5HEET 4 0F 4).

7-85/7-86 blank

CHAPTER 8
SYNCHRO ALINEMENT PROCEDURES

NOTE

Perform the IHAWK synchro alinement procedures whenever misalinement is suspected, or when a synchro is replaced. For system synchro circuit information, refer to the system functional diagrams located in chapter 7. For synchros and resolvers functioning at the major item level, refer to the appropriate major item functional TM for circuit diagrams. Refer to TM 9-4935-542-12 and/or to the individual test equipment TM's for detailed information concerning the test equipment used in these

Section I. IBCC

CAUTION

Remove all data cables.

NOTE

Use jumper leads, not probes, for all connections.

NOTE

Perform this procedure when the alinement of all synchros and resolvers in the IBCC is necessary. Refer to section VII for alinement of individual synchros within the IBCC.

NOTE

If oscilloscope AN/USM-281C is to be used for this procedure, it must first be set up in the conventional configuration with amplifier plug-in units installed in the left-hand and center compartments and the dual time-base plug-in unit installed in the right-hand compartment.

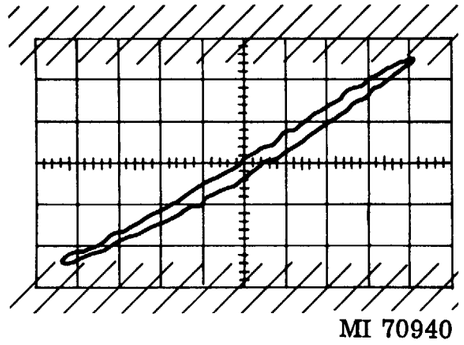


Figure 8-1. In-Phrase indication for oscilloscope.

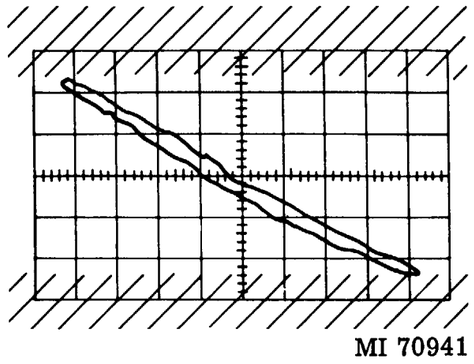


Figure 8-2. Out-of-phase indication for oscilloscope

8-1. TCC Correlation Cursor Resolver B1

a. Set the CORRELATION CURSOR handwheel to 100.

b. Open the TCA panel for access to correlation cursor resolver B1, and close the interlock switch.

c. Energize the IBCC in accordance with TM 9-1430-526-12-1.

WARNING

Before removing or installing any chassis or assembly cover, make certain that all power is turned OFF and that the main circuit breaker is set to OFF.

d. Connect the (+) vertical input of the oscilloscope to pin 7 and the (-) input to pin 8 of TB1 on the TCA panel.

e. Set the oscilloscope controls, as indicated below, for the oscilloscope being used, to obtain a stable presentation of one sawtooth waveform (fig. 8-3).

(1) AN/USM-281A oscilloscope.

Section	*Control*	*Position*
Horizontal	MAGNIFIER	X1
	DISPLAY	INT
	AC-DC	DC
	PHASE/ BANDWIDTH	BAND-WIDTH
Trigger (Main)	VERNIER	CAL
	SWEEP DISPLAY	MAIN
	TIME/DIV	20µSEC
	SWEEP MODE	AUTO
	EXT÷10-EXT-INT-LINE	INT
	ACS-ACF-AC-DC	DC
Vertical	DISPLAY	A or B
	POLARITY	+UP
	MAGNIFIER	X1
	AC-GND-DC	AC
	VOLTS/DIV (vernier)	CAL
	VOLTS/DIV	1

NOTE

Remove the cover from the oscilloscope for access to the PHASE/BANDWIDTH switch, located on horizontal amplifier card A3 at the rear of the oscilloscope chassis.

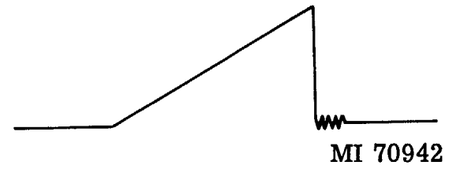


Figure 8-3. Sawtooth waveform for oscilloscope.

(2) AN/USM-281C oscilloscope.

Section	*Control*	*Position*
Body	VERT MODE	LEFT
	TRIG SOURCE	VERT MODE
Dual Time	MODE	NORM or AUTO
Base Plug-in Unit	COUPLING	AC
	SOURCE	INT
	TIME/DIV OR DLY TIME	50 µs
	CAL	Fully cw
	MAG	IN
	DLYD TRIG	Fully cw
	SLOPE	In
	COUPLING	In
	SOURCE	In
	LEVEL	Adjust for stable sawtooth waveform
Vertical Amplifier Plug-in Unit (Left Side)	POLARITY	+ UP
	MAG	X1
	VOLTS/DIV	50 mv
	VARIABLE	Fully cw
	AC-GND-DC	AC

NOTE

For increased accuracy of alinement, set the oscilloscope VERTICAL MAGNIFIER (AN/ USM-281A), or vertical MAG (AN/USM-281C) control to 1.

f. Position the CORRELATION CURSOR handwheel to 0000.

NOTE

Nulling of the X-deflection sawtooth is possible at two points on resolver B1. The correct null will be observed on the oscilloscope when counterclockwise rotation of the handwheel indicates a negative-going sawtooth waveform.

g. If a null appears on the oscilloscope, omit steps h and i below.

NOTE

The correct null for step h will be observed when clockwise rotation of B1 indicates a negative-going sawtooth and counterclockwise rotation indicates a positive-going waveform.

h. Loosen and rotate correlation cursor resolver B1 for a zero deflection (null) of the X-deflection sawtooth waveform.

i. Tighten resolver B1, insuring that the alinement remains correct.

j. Remove the test leads from TB1 and close the TCA panel assembly.

WARNING

Use extreme caution when adjusting the deflection coil, due to the presence of high voltage.

k. Observe that the correlation cursor is displayed at zero mils on the TCC indicator. If not, slightly rotate TCC deflection coil L1.

8-2. TCC Sweep Resolver B4

a. Open the CWTDC cover assembly and close the interlock switch.

b. Remove the left-hand lower and upper access covers from the scan servo assembly.

. Set the test switch on the scan servo amplifier to OPERATE.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

d. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

e. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation to remove mechanical gear error.

f. Observe that the TCC sweep is alined with the correlation cursor at zero mils. If sweep is alined, proceed to paragraph 8-3 below.

g. Loosen and rotate resolver B4 on the scan servo assembly for TCC sweep and correlation cursor coincidence.

h. Tighten resolver B4, insuring that the alinement remains correct.

8-3. PSI Cursor Resolver B9

a. Position the CWTDC cursor mils counter to 0000 mils.

b. Momentarily press the TCC ALERT pushbutton on the CWTDC cover assembly.

c. Observe that the PSI cursor on the TCC indicator is alined with the TCC sweep and correlation cursor. If the PSI cursor is alined, proceed to paragraph 8-4 below.

d. Loosen and rotate resolver B9 on the scan servo assembly for coincidence of the PSI cursor and the TCC sweep.

e. Tighten resolver B9, insuring that alinement remains correct.

8-4. CWTDC Sweep and Cursor

a. Insure that the CWTDC cursor mils counter is still at 0000 mils.

b. Push in and rotate the cw cursor handwheel on the CWTDC until the sweep is within on-half inch of the left edge of the CWTDC indicator, making sure that the cursor mils counter remains at 0000 mils.

c. Adjust the CURSOR POSITION variable resistor on the CWTDC control shelf for cursor and sweep coincidence.

d. Push in and rotate the cw cursor handwheel until the sweep is within one-half inch of the right edge of the CWTDC indicator, making sure that the cursor mils counter remains at 0000 mils.

e. Adjust the CURSOR RANGE variable resistor on the CWTDC control shelf for cursor and sweep coincidence.

f. Repeat steps a through e above until no further adjustment is necessary, and then proceed to step k.

NOTE

If the normal indications of steps c and e above cannot be obtained within the limits of the CURSOR POSITION and CURSOR RANGE variable resistors, perform steps g through k below.

g. Adjust the CURSOR POSITION and CURSOR RANGE variable resistors to mechanical center.

h. Connect a zero-centered dc vtvm to R1-B, pin 5, and ground on the scan servo assembly.

i. Press and rotate the cw cursor handwheel for zero volts on the dc vtvm, insuring that the cursor mils counter remains at 0000 mils.

j. Loosen the clamp on gear 9075707 and carefully adjust the shaft on the counter end of R1 until the CWTDC cursor and sweep are coincident.

k. Tighten the clamp, insuring that the alinement remains correct. Remove the vtvm test leads and repeat steps a through d above.

l. Momentarily press the CW CONFIRM pushbutton on the TCC.

8-5. FCC Sweep Resolver B2

a. Position the center dot of the tracking symbol over the TCC sweep at the 60-km range.

b. Momentarily press the A and B ASSIGN LOW pushbutton on the TCC.

c. The sweeps on FCA and FCB should be alined with the center dot of the TCC designate symbol. If alinement is correct, proceed to step f below.

d. Loosen and rotate FCC sweep resolver B2 on the scan servo assembly until the FCA AND FCB sweeps are alined with the center dot of the designate symbol.

e. Tighten resolver B2, insuring that the alinement remains correct.

WARNING

Use extreme caution when adjusting the deflection coils, due to the presence of high voltage.

f. Observe that the FCA and FCB sweeps are displayed at zero (0) mils on the respective indicators. If not, loosen and rotate deflection coil L1 on each FCC for a sweep displayed at zero (0) mils.

8-6. FCA Sweep and Repeatback Mark Coincidence

a. Set the FCA SYSTEM ACCURACY TEST switch to OFF.

b. Position the FCA azimuth designate cursor in coincidence with the FCA sweep.

c. Open the FCA cover assembly and close the interlock switch.

CAUTION

Pin 4 of TB20 is 115 vac (IBCC) synchro bus). Insure that this point does not become grounded.

NOTE

For this procedure and for the remaining procedures in this chapter, oscilloscope AN/ USM-281C, if used, must be set up in the X-Y configuration with the two amplifier plug-in units installed in the left-hand and right-hand compartments and the dual time-base plug-in unit installed in the center compartment.

d. Connect the horizontal (+) input of the oscilloscope to pin 4 of TB20 in the cable entry enclosure for the remainder of the IBCC alinement procedures (section I).

e. For observation of the Lissajous patter and to determine the phase relationship of the two waveforms, set the oscilloscope controls for the oscilloscope being used, as follows:

(1) AN/USM-281A oscilloscope.

NOTE

Remove the cover from the oscilloscope for access to the PHASE/BANDWIDTH switch, located on horizontal amplifier card A3 at the rear of the oscilloscope chassis.

Section	*Control*	*Position*
Horizontal	MAGNIFIER	X1
	DISPLAY	EXT SENS
	AC-DC	AC PHASE/
	BANDWIDTH	PHASE
Vertical	DISPLAY	A or B
(Channel	POLARITY	+ UP
A or B)	MAGNIFIER	X1
	AC-GND-DC	AC
	VOLTS/DIV (vernier)	CAL
	VOLTS/DIV	1

(2) AN/USM-281C oscilloscope.

Section	*Control*	*Position*
Body	VERT MODE	LEFT
Vertical	POLARITY	+ UP
Amplifier	MAG	X1
Plug-in Unit	VOLTS/DIV	2V
(Left Side)	VARIABLE	Center
	AC-GND-DC	AC
Horizontal	POLARITY	+ UP
Amplifier	MAG	X1
Plug-in Unit	VOLTS/DIV	2V
(Right Side)	AC-GND-DC	AC

f. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

g. Connect the oscilloscope vertical (+) input to pin 15 and the (-) input to pin 17 of TB2 in the cable entry enclosure.

h. Loosen and rotate synchro B2 on the FCA cover assembly for a horizontal straight line (null) on the oscilloscope.

i. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

This is the correct null (electrical zero) of synchro B2. If the oscilloscope presentation is as shown in figure 8-2, synchro B2 is on the incorrect null. If the incorrect null is obtained, rotate B2 180 degrees to obtain the correct null.

j. Transfer the vertical input from the oscilloscope to the model 300M ac voltmeter. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

k. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

l. Remove the test leads from pins 15 and 17 of TB2 in the cable entry enclosure.

8-7. Deleted

8-8. FCA Manual and Auto Elevation Alinement

a. Place the FCA SYSTEM ACCURACY TEST switch to OFF.

b. Remove the cover from under the FCA control shelf and close the interlock switch.

c. Position the FCA MANUAL ELEVATION control to zero mils and press the ELEVATION MANUAL pushbutton on the FCA cover assembly.

d. Connect the oscilloscope vertical (-) input to pin 12 and the (+) input to pin 14 of TB2 in the cable entry enclosure.

e. Loosen and rotate synchro B1 (MANUAL ELEVATION control) on the FCA control shelf for a horizontal straight line (null) on the oscilloscope.

f. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

g. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

h. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

i. Remove the ac voltmeter input and connect it to the oscilloscope vertical input. Insure that the (-F) input is connected to TB2 pin 14.

WARNING

15 Kv is present on the CRT. Break the interlock.

j. Remove relay chassis A10 from the FCA.

k. Loosen the knurled locking screw on relay chassis A10 and rotate the scale dial cw from zero until the mark labeled ElB1 is alined with the scribe mark. Tighten the knurled locking screw.

l. Reconnect P6 in the FCA to J1 on relay chassis A10. Position the chassis for easy access to synchros B1, B2, and B3.

m. Press the FCA ELEVATION LOW pushbutton on the FCA cover assembly and observe that the FCA LOW pushbutton illuminates.

n. Loosen and rotate synchro ElB1 on relay chassis A10 for a horizontal straight line (null) on the oscilloscope.

o. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

p. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

q. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

r. Remove the ac voltmeter input and connect it to the oscilloscope vertical input. Insure that the (+) input is connected to TB2 pin 14.

s. Loosen both the limit screw and the knurled locking screw on relay chassis A10 and rotate the scale dial cw until the red mark labeled B2 is alined with the scribe line. Tighten the knurled locking screw.

t. Press the ELEVATION HIGH pushbutton on the FCA cover assembly and observe that the ELEVATION HIGH pushbutton illuminates.

u. Loosen and rotate synchro B2 on the relay chassis for a horizontal line (null) on the oscilloscope.

v. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

w. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

x. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

y. Remove the-ac voltmeter input and connect it to the oscilloscope vertical input. Insure that the (+) input is connected to pin 14 of TB2 in the cable entry enclosure.

z. Press the ELEVATION MANUAL pushbutton on the FCA cover assembly.

aa. Loosen the knurled locking screw on the relay chassis and rotate the scale dial ccw to zero mils. Tighten the knurled locking screw and the limit screw loosened in step s above.

ab. Install the relay chassis in the FCA. Replace all covers on the FCA and close the cover assembly.

ac. Remove the test leads from pins 12 and 14 of TB2 in the cable entry enclosure.

8-9. FCB Sweep and Repeatback Mark Coincidence

a. Place the FCB azimuth designate cursor in coincidence with the FCB sweep.

b. Open the FCB cover assembly and close the interlock switch.

c. Set the FCB SYSTEM ACCURACY TEST switch to OFF.

d. Connect the oscilloscope vertical (+) input to pin 16 and the (-) input to pin 18 of TB5 in the cable entry enclosure.

e. Loosen and rotate synchro B2 on the FCB cover assembly for a horizontal straight line (null) on the oscilloscope.

f. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

g. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

h. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

i. Remove the test leads connected to pins 16 and 18 of TB5 in the cable entry enclosure.

8-10. Deleted

8-11. FCB Manual and Auto Elevation Alinement

a. Remove the cover from under the FCB control shelf and close the interlock switch.

b. Place the FCB MANUAL ELEVATION control to zero mils and press the FCB ELEVATION MANUAL pushbutton.

c. Connect the oscilloscope vertical (-) input to pin 13 and the (+) input to pin 15 of TB5 in the cable entry enclosure.

d. Loosen and rotate synchro B1 (MANUAL ELEVATION control) on the FCB control shelf for a horizontal straight line (null) on the oscilloscope.

e. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

f. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

g. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

NOTE
Do not move the FCB MANUAL ELEVATION control for the remainder of this procedure.

h. Remove the ac voltmeter input and reconnect it to the oscilloscope input. Insure that the (+) input is connected to TB5 pin 15.

WARNING
15 Kv is present on the CRT. Break the interlock.

i. Remove relay chassis A10 from the FCB.

j. Loosen the knurled locking screw and rotate the scale dial cw from zero until the mark labeled B1 is alined with the scribe mark. Tighten the knurled locking screw.

k. Reconnect P6 to J1 on relay chassis A10. Position the chassis for easy access to synchros B1, B2, and B3.

l. Press the FCB ELEVATION LOW pushbutton and observe that the FCB LOW pushbutton illuminates.

m. Loosen and rotate synchro P 1 on relay chassis A10 for a horizontal straight line (null) on the oscilloscope.

n. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

o. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

p. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

q. Remove the ac voltmeter input and connect it to the oscilloscope vertical input. Insure that the (+) input is connected to TB5 pin 15.

r. Press the ELEVATION HIGH pushbutton on the FCB cover assembly and observe that the ELEVATION HIGH pushbutton illuminates.

s. Loosen the limit screw and the knurled locking screw on FCB relay chassis A10, and rotate the scale dial cw until the red mark labeled B2 is alined with the scribe line. Tighten the knurled locking screw.

t. Loosen and rotate synchro B2 on the relay chassis for a horizontal straight line (null) on the oscilloscope.

u. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

v. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B2 slightly to obtain a null on the ac voltmeter (100 millivolts maximum).

w. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

x. Remove the ac voltmeter input and connect it to the oscilloscope vertical input. Insure that the (+) input is connected to TB5 pin 15.

y. Press the ELEVATION MANUAL pushbutton on the FCB cover assembly.

z. Loosen the knurled locking screw on the relay chassis and rotate the scale dial ccw to zero mils. Tighten the knurled locking screw and the limit screw loosened in step r above.

aa. Install the relay chassis in the FCB. Replace all covers on the FCB and close the cover assembly.

ab. Remove the test leads from TB5 pins 13 and 15 in the cable entry enclosure.

ac. Return the .BCC to normal operation.

8-12. Sweep Resolver Drive B3

a. Connect jumper leads to the following points in the cable entry enclosure:

From	*To*
Pin 13, TB5	Pin 17, TB11
Pin 14, TB5	Pin 18, TB11
Pin 15, TB5	Pin 19, TB11

b. Remove scan servo amplifier A5 from the fire control group (FCG).

c. Connect the (+) vertical input of the oscilloscope to pin 12, and the (-) input to pin 11 of J9 in the FCG. J9 mates with J1 on the rear of the chassis removed in step b above.

d. Insure that the CWTDC SCAN MODE switch is in the NORMAL position.

e. Press the ELEVATION MANUAL pushbutton on FCB. Insure that the Manual ELEVATION control on the FCB control shelf is at zero (0) mils.

f. Loosen and rotate synchro B3 on the scan servo assembly for a horizontal straight line (null) on the oscilloscope.

g. Rotate B3 slightly cw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If cw rotation indicates out of phase (fig. 8-2), rotate B3 180 degrees to obtain the correct null.

h. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B3 slightly for a null on the ac voltmeter (200 millivolts maximum).

i. Tighten synchro B3, insuring that the alinement remains correct.

j. Remove all test leads and jumper leads. Replace the scan servo amplifier in the FCG.

k. Remove the indexing pin from the scan servo assembly and replace it in the retaining clip.

l. Replace the access covers on the scan servo assembly and close the CWTDC cover assembly.

m. Set the test switch on the scan servo amplifier to TEST ROTATE.

n. Return the BCC to normal operation.

Section II. CWAR

NOTE

Use jumper leads, not probes, for all connections.

8-13. Azimuth Handwheel Synchro B1

a. Insure that the ICWAR controls are positioned in accordance with the LOCAL settings specified in TM 9-1430-1528-12-1.

b. Remove the data cable and press the STANDBY pushbutton.

c. Manually position the antenna to face over the radar set group and engage the azimuth stow lock.

d. Rotate the azimuth mils indicator ring to indicate 3200 mils on the vernier. Tighten the knurled locking screws.

e. Disengage the azimuth stow lock, and manually rotate the antenna 180 degrees to zero mils (facing over the amplidyne cover).

NOTE

Insure that the antenna remains at zero mils for the remainder of this procedure.

f. Rotate the cluster orient knob in the antenna pedestal until the long hairline is directly under the indicator line on the viewing window.

g. Record the setting of the boresight shift compensator in the antenna pedestal and then set it to zero.

h. Rotate the azimuth handwheel on the fuse and control panel to indicate zero mils.

i. Set the standby interlock override switch to BATTLE SHORT ON.

WARNING

416 Vac is present in the fuse and control panel.

CAUTION

Do not connect a ground lead to R2 of B1. Damage to the equipment may result.

j. Open the fuse and control panel for access to synchro B1.

k. Connect the oscilloscope horizontal input to the centertap of F22 in the fuse and control panel.

l. Set the oscilloscope controls as described in paragraph 8-6e.

m. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

n. Connect the oscilloscope vertical (-) input to TB5 pin 12 and the (+) input to TB5 pin 10 in the fuse and control panel.

o. Loosen and rotate synchro B1 for a horizontal straight line (null) on the oscilloscope.

p. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

q. Transfer the vertical input from the oscilloscope to the model 300M ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

r. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

s. Remove the test leads and close the fuse and control panel.

8-14. Azimuth Error and Compensate Synchros B3 and B7

a. Remove the antenna pedestal cover for access to synchros B3 and B7.

b. Loosen synchro B7.

c. Connect the oscilloscope (+) horizontal input to R1 of B2 in the antenna pedestal.

d. Connect the oscilloscope vertical (+) input to R1 and the (-) input to R3 of B7.

e. Rotate synchro B7 for a horizontal straight line (null) on the oscilloscope.

f. Rotate B7 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B7 180 degrees to obtain the correct null.

g. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B7 slightly for a null on the ac voltmeter (100 millivolts maximum).

h. Tighten synchro B7, insuring that the voltmeter indication does not exceed 100 millivolts.

i. Remove the test leads from R1 and R3 of B7.

j. Loosen synchro B3.

k. Connect the oscilloscope vertical (-) input to R1 and the (+) input to R2 of B3.

NOTE
The oscilloscope horizontal (+) input remains on R1 of B2.

l. Rotate B3 for a horizontal straight line (null) on the oscilloscope.

m. Rotate B3 slightly cw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If cw rotation indicates out of phase (fig. 8-2), rotate B3 180 degrees to obtain the correct null.

n. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B3 slightly for a null on the ac voltmeter (100 millivolts maximum).

o. Tighten synchro B3, insuring that the voltmeter indication does not exceed 100 millivolts.

p. Remove the test leads from R1 and R2 of B3.

8-15. Azimuth Reference and Compensate Synchros B2 and B

a. Loosen synchro B2.

b. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of B2.

c. Rotate synchro B2 for a horizontal straight line (null) on the oscilloscope.

d. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B3 180 degrees to obtain the correct null.

e. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

f. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

g. Remove the test leads from S1 and S3 of B2.

h. Loosen synchro B6.

i. Connect the oscilloscope vertical (+) input to R1 and the (-) input to R3 of B6.

j. Rotate synchro B6 for a horizontal straight line (null) on the oscilloscope.

k. Rotate B6 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B6 180 degrees to obtain the correct null.

l. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B6 for a null on the ac voltmeter (100 millivolts maximum).

m. Tighten synchro B6, insuring that the voltmeter indication does not exceed 100 millivolts.

n. Remove all test leads and test equipment from the CWAR.

o. Replace the access panel on the antenna pedestal.

p. Set the standby interlock override switch to NORMAL.

q. Energize the CWAR to false radiate in accordance with TM 9-1430-1528-12-1.

r. Observe that the antenna remains at zero mils.

8-16. Boresight Shift Compensator

a. Set the antenna SAFETY switch to SAFE.

NOTE
Insure that the antenna is at zero mils azimuth.

b. Set the boresight shift compensator to +0.8 degree.

c. Connect the ac voltmeter across resistor R1 in the azimuth control amplifier.

d. Manually rotate the antenna for a null on the ac voltmeter. Read and record the setting of the azimuth mils indicator ring.

e. Set the boresight shift compensator to -0.8 degree.

f. Manually rotate the antenna slightly for a null on the ac voltmeter.

g. Read and record the setting of the azimuth mils indicator ring.

h. Subtract the azimuth mils indicator reading in step (g above from the reading in step d above. The difference should be 26 to 32 mils.

i. Return the boresight shift compensator to the position recorded in step g of paragraph 8-13.

j. Return the CWAR to normal operation.

Section III. HIPIR

NOTE
Use jumpers, not probes, for all connections.

8-17. Azimuth Handwheel Synchro B1

a. Insure that the procedures prior to application of power and position of controls prior to application of power in TM 9-1430-1533-12-1 have been completed with the following exceptions:

(1) Disconnect all data cables from the HIPIR.

(2) Position the elevation handwheel to indicate zero mils.

b. Energize the HIPIR to STANDBY in accordance with TM 9-1430-1533-12-1.

c. Manually position the antenna to face over the radar set group, and engage the azimuth stow lock.

d. Rotate the synchro orient adjust knob in the antenna pedestal to aline the zero mils mark around B2 with the indicator line.

e. Set the standby interlock override switch to BATTLE SHORT ON.

f. Adjust the azimuth handwheel to indicate zero mils.

WARNING
416 Vac is present in the control and indicator panel.

g. Open the control and indicator panel for access to azimuth and elevation synchros B1 and B2.

CAUTION
Do not connect a ground lead to R2 of B1.

h. Loosen synchro B1.

i. Connect the oscilloscope horizontal (+) input to R1 of B1 in the control and indicator panel.

j. Position the oscilloscope controls as described in paragraph 8-6e.

k. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

l. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of B1.

m. Rotate synchro B1 for a horizontal straight line (null) on the oscilloscope.

n. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

o. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

p. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

q. Remove the test leads from S1 and S3 of B1.

NOTE
Do not remove the test leads connected to R1(+) of B1.

8-18. Elevation Handwheel Synchro B2

a. Loosen synchro B2.

b. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of synchro B2 in the control and indicator panel.

c. Rotate synchro B2 for a horizontal straight line (null)'on the oscilloscope.

d. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

e. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

f. Tighten synchro B2, ensuring that the voltmeter indication does not exceed 100 millivolts.

g. Remove all test leads from the radar set group.

NOTE

Do not move the azimuth and elevation hand-wheels for the remainder of this procedure.

8-19. Azimuth Error Synchro B3

a. Connect the oscilloscope horizontal (+) input to pin 1 of TB3 located to the left of synchro B3 in the antenna pedestal.

b. Loosen synchro B3.

c. Connect the oscilloscope vertical (+) input to R1 and the (-) input to R2 of synchro B3 in the antenna pedestal.

d. Rotate synchro B3 for a horizontal straight line (null) on the oscilloscope.

e. Rotate B3 slightly ccw so that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B3 180 degrees to obtain the correct null.

f. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B3 slightly for a null on the ac voltmeter (100 millivolts maximum).

g. Tighten synchro B3, ensuring that the voltmeter indication does not exceed 100 millivolts.

h. Remove the test leads from B3.

8-20. Azimuth Repeatback Synchro B2

a. Loosen synchro B2.

b. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of B2.

NOTE

The oscilloscope horizontal input remains connected to pin 1 of TB3.

c. Rotate synchro B2 for a straight line (null) on the oscilloscope.

d. Rotate synchro B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

e. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

f. Tighten synchro B2, ensuring that the voltmeter indication does not exceed 100 millivolts.

g. Remove the test leads from synchro B2.

8-21. Launcher Azimuth Synchro B1

a. Loosen synchro B1.

b. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of synchro B1 in the antenna pedestal.

c. Rotate synchro B1 for a horizontal straight line (null) on the oscilloscope.

d. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

e. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

f. Tighten synchro B1, ensuring that the voltmeter indication does not exceed 100 millivolts.

g. Remove the test leads from pin 1 of TB3 and from S1 and S3 of synchro B1.

h. Loosen and rotate the azimuth mils indicator ring to indicate zero mils. Tighten the knurled locking screws.

8-22. Elevation Repeatback and Elevation Error Synchros B5 and B6

NOTE

Ensure that the HIPIR is level (refer to TM 9-1430-1533-12-1).

NOTE

During the following steps, manually adjust the antenna if it drifts off zero mils.

a. Disengage the azimuth stow lock.

b. Set the master oscillator and power amplifier BEAM circuit breaker to OFF.

c. Clear all test equipment from the antenna area.

d. Position the indicator controls as follows:

(1) Elevation brake lever to the up position.

(2) Antenna SAFE-OPERATE switch to OPERATE.

(3) MOTOR GENERATOR circuit breaker to ON.

e. Press the radiate pushbutton and ensure that the HIPIR is in FALSE RADIATE.

f. Observe that the antenna is positioned at zero mils azimuth and elevation.

g. If the elevation vernier has been physically moved since the last radar boresight was performed, request the DSU to boresight the radar prior to continuing.

WARNING

416 Vac is present inside the elevation head assembly.

h. Set the MOTOR GENERATOR circuit breaker to OFF.

i. Set the SAFE-OPERATE switch to SAFE.

j. Set the elevation brake lever to the down position.

k. Remove the large access cover from the elevation head assembly for access to synchros B5 and B6.

l. Loosen synchro B5 in the elevation head.

m. Connect the oscilloscope horizontal (+) input to R1 of synchro B2 and the (-) input to ground in the antenna pedestal.

n. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of synchro B5.

o. Rotate synchro B5 for a horizontal straight line (null) on the oscilloscope.

p. Rotate B5 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B5 180 degrees to obtain the correct null.

q. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B5 slightly for a null on the ac voltmeter (100 millivolts maximum).

r. Tighten synchro B5, ensuring that the voltmeter indication does not exceed 100 millivolts.

s. Remove all test leads from B6.

t. Connect the oscilloscope vertical (+) input to R2 and the (-) input to R1 of synchro B6 in the antenna pedestal.

u. Loosen and rotate synchro B6 for a horizontal straight line (null) on the oscilloscope.

v. Rotate B6 slightly cw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If cw rotation indicates out of phase (fig. 8-2), rotate B6 180 degrees to obtain the correct null.

w. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B6 slightly for a null on the ac voltmeter (100 millivolts maximum).

x. Tighten synchro B6, insuring that the voltmeter indication does not exceed 100 millivolts.

y. Remove the test leads from B6 and B2 and replace the access cover.

Section IV. ILCHR

NOTE
Use jumper leads, not probes, for all connections.

NOTE
Disconnect the data cable and unload missiles from all three ILCHIR arms.

8-23. Launcher Control Units (LCU) Alinement

a. Position the LCU and ILCHR controls and circuit breakers in accordance with the "Preparation for Checks" table, TM 9-1440-531--12---1.

b. Remove the cover assembly from the LCU for access to synchros B1 and R2.

c. Position the azimuth and elevation handwheels on the LCU to zero mils.

d. Set the LCU MAIN POWER switch to MAIN POWER.

e. Set the LOCAL/REMIOTE switch to LOCAL.

f. Loosen synchro B1 (azimuth).

NOTE
Do not connect the ground lead to RI of B1.

g. Connect the oscilloscope horizontal (+) input to R2 of B1 in the LCU.

h. Position the oscilloscope controls as described in paragraph 8-6e.

i. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

[1]Refer to appendix B for serial number effectivity.

z. Observe that the elevation vernier indicates zero mils.

aa. Remove all test equipment and return the IHIPIR to normal operation.

j. Connect the oscilloscope vertical (+) input to S1 and the (--) input to S3 of B1 in the LCU.

k. Rotate synchro B1 for a horizontal straight line (null) on the oscilloscope.

l. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

m. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

n. Lighten B1, insuring that the volunteer indication does ,rot exceed 100 millivolts.

NOTE
Do not disconnect the test lead from R2 of B1.

o. Remove the test leads from S1 and S3 of B1.

p. Loosen synchro B2.

q. Connect the oscilloscope (+) input to S1 and the input to S3 of B2 in the LCU.

r. Rotate synchro B2 for a horizontal straight line (null) on the oscilloscope.

s. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If ccw rotation indicates our of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

t. Transfer the vertical input from the oscilloscope)e to the ac voltmeter. Rotate 132 slightly for a null on the ac voltmeter (100 millivolts maximum).

u. Tighten synchro b2, insuring that the voltmeter indication does not exceed 100 millivolts.

v. Remove all test leads from the LCU.

w. Set the LCU MAIN POWER switch to OFF and replace the cover assembly.

NOTE
Do not move the LCU handwheel settings for the remainder of this procedure.

8-24. Azimuth Error Synchro B7

a. Remove the ILCHR front and rear compartment covers.

b. Pull out HYDRAULIC PUMP circuit breaker CB1 on the base distribution box.

c. Insure that the ILCHR is level in accordance with TM 9-1440-531-12-1.

NOTE
Refer to TM 9-1440-531-12-1 for hatch raising procedures.

d. Raise the ILCHR hatch for access to the azimuth error synchro, and insure that the boom support rod is installed.

e. *(K)[1] Remove the azimuth and elevation control amplifiers.

f. Remove the generator power cable from the IT,CIR.

g. Connect the oscilloscope horizontal (+) input to pin 10 of TB10 in the base distribution box.

h. Cut the safety wire and loosen azimuth error synchro B7 on the boom assembly.

i. Reconnect the generator power cable to the ILCHR.

j. *(L)[1] Connect the oscilloscope vertical (-) input to J1 and the (+) input to J6 on the azimuth control amplifier.

j. . *(K)[1] Connect the oscilloscope vertical (-) input to pin EE and the (+) input to pin V of J501. J501 mates with P1 on the azimuth control amplifier removed in step e.

k. Set the LCU MAIN POWERP switch to MAIN POWFR.

m. Rotate B7 for a horizontal straight line (null) on the oscilloscope.

n. Rotate the synchro slightly cw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE
If cw rotation indicates out of phase (fig. 8-2), rotate the synchro 180 degrees to obtain the correct null.

o. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate the synchro slightly for a null on the ac voltmeter (100 millivolts maximum).

p. Tighten the synchro, insuring that the voltmeter indication does not exceed 100 millivolts, and replace the safety wire. (Refer to TM 9-1425-525-12-4 for safety wiring instructions.)

q. *(L)[1] Remove the test leads from J1 and J6 of the azimuth control amplifier.

q.1 *(K)[1] Remove the test leads from pins EE and V of J501.

r. Set the LCU MAIN E'OWER switch to OFF.

NOTE
Refer to TM 9-1440-531-12-1 for hatch lowering procedures.

s. Lower the hatch.

8-25. Elevation Error Synchro B1

a. Remover the blast deflector assembly and cover plate (rear plate) from the “b” arm.

b. Place the boom support bracket under the index fitting and support it centrally with the jack resting on the blocking.

c. Using the jack positioned in step b, position the ILCHR boom until the level indicator in “B” arm indicates level.

d. Cut the safety wire and loosen synchro B1.

e. Set the LCU MAIN POWER switch to MAIN POWER.

f. *(L)[1] Connect the oscilloscope vertical (-) input to J1 and the (+) input to J6 on the elevation control amplifier.

f. . *(K)[1] Connect the oscilloscope vertical (-) input to pin EE and the (+) input to pin V of J401. J401 mates with P1 on the elevation control amplifier removed in paragraph 8-24e.

NOTE
The oscilloscope horizontal input remains connected to pin 10 of TB10 in the base distribution box.

g. Rotate B1 for a horizontal straight line (null) on the oscilloscope.

h. Rotate the synchro slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate the antenna 180 degrees to obtain the correct null.

i. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate the synchro slightly for a null on the ac voltmeter (100 milli-volts maximum).

j. Tighten the synchro, ensuring that the volt-meter indication does not exceed 100 millivolts, and replace the safety wire. (Refer to TM 9-1425-525-12-4 for safety wiring instructions).

k. Set the LCU MAIN POWER switch to OFF

and remove the generator power cable from the LCHR.

l. Remove all test leads.

m. Replace the blast deflector assembly and cover plate on the "B" arm.

n. Remove the boom support bracket, jack, and blocking installed in step b above.

o. Push in the IIYDRAULIC PUMP circuit breaker on the base distribution box.

p. Set the HYD PRESS switch to OFF.

q. Replace the front and rear compartment covers.

r. Replace the generator power cable.

s. Return the LCHR to normal operation.

Section V. Par

NOTE

Use jumper leads, not probes, for all connections.

8-26. Trailer Compensator B3

a. Ensure that the PAR is in LOCAL control, STANDBY operation, with antenna to OFF, and that the antenna SAFE-OPERATE switch is set to SAFE.

b. Disconnect both data cables from the PAR.

c. Open the power distribution panel and close the interlock switch.

WARNING

416 Vac is present in the radar set group.

WARNING

115 Vac is present at pin 129 of TB10.

d. Connect the oscilloscope horizontal (+) input to pin 129 of TB10 in the radar set group.

NOTE

The oscilloscope horizontal input will remain connected to pin 129 of TB10 for the remainder of this procedure.

e. Set the oscilloscope controls as described in paragraph 8-6e.

f. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

g. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of synchro B3 (trailer compensator) in the radar set group.

h. Manually rotate the antenna for a horizontal straight line (null) on the oscilloscope.

i. Manually rotate the antenna slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate the synchro 180 degrees to obtain the correct null.

j. Remove the vertical input from the oscilloscope and connect it to the model 300M ac voltmeter.

k. Manually rotate the antenna slightly for a null on the ac voltmeter (100 millivolts maximum).

NOTE

Engage the antenna stow lock and ensure that the antenna does not move for the remainder of this procedure.

l. Transfer the test leads from S1 and S3 of B3 to R1 (+) and R3 (-) of B3. Reconnect the leads to the oscilloscope vertical input.

m. Rotate the trailer compensator B3 knob, located on front of the power distribution panel, for a horizontal straight line (null) on the oscilloscope.

n. Rotate the trailer compensator knob slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate the trailer compensator knob 180 degrees to obtain the correct null.

o. Transfer the vertical input from the oscilloscope to the ac voltmeter.

p. Adjust the trailer compensator knob slightly for a null on the ac voltmeter (100 millivolts maximum).

q. Remove the test leads from R1 and R3 of B3.

8-27. Servo Error Synchro B2

WARNING

High voltage is present in the azimuth and range indicator.

a. Open the azimuth and range indicator and close the interlock. Connect the oscilloscope vertical (+) input to pin 4 and the (-) input to pin 5 of TB2.

b. Rotate servo gain adjust R40 on range mark generator A4 fully ccw.

c. Manually rotate the PPI deflection gear-train to align the PPI sweep at zero mils.

d. Loosen and rotate synchro B2 on azimuth and range indicator A2 for a horizontal straight line (null) on the oscilloscope.

e. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

f. Transfer the vertical input from the oscilloscope and connect it to the ac voltmeter.-

g. Adjust synchro B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

h. Tighten synchro B2, ensuring that the alignment remains correct.

i. Remove all test leads and test equipment from the PAR, and close the power distribution panel.

NOTE

If the azimuth indicator gear-train oscillates, decrease the servo gain adjust slightly ccw.

j. Rotate servo gain adjust R40 on the range mark generator one-quarter turn cw. Observe that the PPI sweep remains at zero mils.

k. Return the PAR to normal operation.

Section VI. IROR

NOTE

Use jumper leads, not probes, for all connections.

8-28. Azimuth Handwheel Synchro B2

a. Disconnect the data cables and energize the radar in accordance with TM 9-1430-529-12-1.

b. Position the azimuth handwheel to zero mils.

c. Loosen the retaining hardware on the radar set control chassis and slide it out enough for access to synchros B1 and B2.

d. Connect the oscilloscope horizontal (+) in-put to R1 of B1.

e. Set the oscilloscope controls as described in paragraph 8-6e.

f. Adjust the oscilloscope horizontal amplifier GAIN (USM-50C), horizontal MAGNIFIER (USM-281A), or horizontal VARIABLE (USM-281C) control for eight divisions of horizontal deflection.

g. Loosen synchro B2.

h. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of B2.

i. Rotate synchro B2 for a horizontal straight line (null) on the oscilloscope.

j. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

k. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

l. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

m. Remove the test leads from B2.

8-29. Elevation Handwheel Synchro B1

a. Position the elevation handwheel to zero mils.

b. Loosen synchro B1.

c. Connect the oscilloscope vertical (-) input to S1 and the (+) input to S3 of B1 in the radar set control.

d. Connect the oscilloscope horizontal (+) input to R1 of B2.

e. Rotate B1 for a horizontal straight line (null) on the oscilloscope.

f. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

g. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate BI slightly for a null on the ac voltmeter (100 millivolts maximum).

h. Tighten synchro B1, insuring that the volt-meter indication does not exceed 100 millivolts.

NOTE

Insure that the elevation handwheel is not moved from zero mils for the remainder of this procedure.

i. Remove all test leads and replace the radar set control chassis.

8-30. Elevation Error Synchro B4

a. Insure that the IROR is level (refer to TM 9-1425-525-12-1).

b. Insure that the TEST switch on the amplifier computer is in the NORMAL position, and that the ERROR switch is set to COMPUTER AZ.

c. If the elevation vernier has been physically moved since the last radar boresight was performed, request the DSU to boresight the radar prior to continuing.

d. Energize the IROR and observe that the antenna remains positioned at zero mils elevation on the vernier dial.

e. Observe that the test bubble is centered within one division on the test level. If not, request the DSU personnel to boresight the IROR.

f. Connect the oscilloscope horizontal (+) input to pin 6 of TB1 in the antenna pedestal.

g. Connect the oscilloscope vertical (+) input to pin 14 and the (-) input to pin 15 of TB8 in the elevation head assembly.

h. Remove the safety wire from the dust covers on the B4 and B5 adjustment shafts, and remove the dust covers.

i. Rotate the B4 adjustment screw for a horizontal straight line (null) on the oscilloscope.

j. Rotate the B4 adjustment screw slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

k. Transfer the vertical input from the oscilloscope to the ac voltmeter. Rotate the B4 adjustment screw slightly for a null on the ac voltmeter (100 millivolts maximum).

l. Remove all test leads from the IROR.

8-31. Azimuth Resolver B5

a. Set the ON-OFF switch on the radar set control to OFF.

b. Remove the parallax computer.

c. Connect jumpers between the following points in the radar set group:

From	*To*
TB22 pin 3	Ground
TB22 pin 4	Junction of R18 and R22

d. Replace the parallax computer.

e. Set the ON-OFF switch to ON.

f. Connect the oscilloscope horizontal (+) input to pin 11 of TB8 in the antenna pedestal.

g. Connect the oscilloscope vertical (+) input to pin 7 and the (--) input to pin 8 of TB8.

h. Rotate the B5 adjustment screw for a horizontal straight line (null) on the oscilloscope.

i. Rotate the B5 adjustment screw slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

j. Transfer the oscilloscope vertical input to the ac voltmeter. Rotate the B5 adjustment screw slightly for a null on the ac voltmeter (100 millivolts maximum).

k. Remove the parallax computer, remove the jumper leads connected in step c above, and reinstall the parallax computer.

l. Remove the remaining test leads from the IROR.

m. Replace and safety wire the B4 and B5 adjustment screw dust covers. (Refer to TM 9-1425-525-12-4 for safety wiring instructions.)

n. Remove the cross and perpendicular test level and replace the telescope in the mount.

o. Return the IROR to normal operation.

Section VII. INDIVIDUAL SYNCHROS WITHIN THE IBCC

NOTE

Perform this procedure only when the alinement of any one synchro or resolver is necessary. Insure that all other synchros and resolvers are properly alined before application of this procedure. If correct alinement cannot be assured, perform the overall IBCC synchro alinement procedures in section I.

NOTE

Use jumper leads, not probes, for all connections.

8-32. TCC Correlation Cursor Resolver B1

a. Place all radars in LOCAL control.

WARNING

Before removing or installing any chassis or assembly cover, make certain that all power is turned OFF and that the main circuit breaker is OFF.

b. Position the CORRELATION CURSOR handwheel to indicate 0000 mils on the mils counter.

c. Remove the data cable connected to J5 on the cable entry enclosure.

d. Set the test switch on the scan servo amplifier to OPERATE.

e. Set the SCAN MODE switch on the CWTDC to NORMAL.

f. Open the CWTDC cover assembly for access to the scan servo assembly and close the interlock switch.

g. Remove the lower left-hand access cover from the scan servo assembly.

h. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

i. Gently apply pressure to the motor drive gear in the same direction as the normal sweep rotation to remove mechanical gear error.

j. Observe that the TCC sweep is positioned at zero mils.

k. Open the TCC panel assembly (TCA) for access to resolver B1 and close the interlock switch.

l. Observe that the correlation cursor is coincident with the TCC sweep. If not, loosen and rotate resolver B1 for coincidence. Tighten B1, insuring that the alinement remains correct.

m. Replace the lower left-hand access cover from the scan servo assembly.

n. Remove the indexing pin from the scan servo assembly drive gear slot and close all cover assemblies.

o. Reconnect the data cable to J5 on the cable entry enclosure.

8-33. TCC Sweep Resolver B4

a. Place all radars in LOCAL control.

b. Remove the data cable connected to J5 on the cable entry enclosure.

c. Position the CORRELATION CURSOR (MILS) counter to indicate 0000 mils.

d. that the correlation cursor is displayed at zero (0) mils on the TCC indicator.

e. Set the test switch on the scan servo amplifier to OPERATE.

f. Set the SCAN MODE switch on the CWTDC to NORMAL.

g. Open the CWTDC cover assembly for access to the scan servo assembly.

h. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

i. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation, to remove mechanical gear error.

j. Loosen and rotate resolver B4 on the scan servo assembly until the TCC sweep is coincident with the correlation cursor at zero (0) mils.

k. Tighten resolver B4, insuring that the alinement remains correct.

l. Remove the indexing pin from the scan servo assembly drive gear slot, and close the CWTDC cover assembly.

m. Reconnect the data cable to J5 on the cable entry enclosure.

8-34. PSI Cursor Resolver B9

a. Place all radars in LOCAL control.

b. Position the CWTDC cursor mils counter to 0000 mils.

c. Open the CWTDC cover assembly for access to the scan servo assembly.

d. Remove the upper left access cover from the scan servo assembly for access to resolver B9.

e. Position the TCC CORRELATION CURSOR (MILS) counter to 0000 mils and observe that the correlation cursor is displayed at zero (O) mils on the TCC indicator.

f. Momentarily press the TCC ALERT pushbutton on the CWTDC.

g. Loosen and rotate resolver B9 on the scan servo assembly until the PSI cursor is coincident with the correlation cursor on the TCC indicator.

h. Tighten resolver B9, insuring that the alinement remains correct.

i. Replace the access cover on the scan servo assembly.

j. Close the CWTDC cover assembly.

8-35. CWTDC Sweep and Cursor R1

a. Place all radars in LOCAL control.

b. Set the SCAN MODE switch on the CWTDC to NORMAL.

c. Remove the data cable from J5 on the cable entry enclosure.

d. Set the test switch on the scan servo amplifier to OPERATE.

e. Position the CWTDC cursor mils counter to 0000 mils.

f. Open the CWTDC cover assembly for access to the scan servo assembly and close the interlock switch.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

h. Remove the left-hand lower access cover from the scan servo assembly.

NOTE

Manual rotation of the drive gear may be necessary to aline the gear slot.

i. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation, to remove mechanical gear error.

j. Push in and rotate the cw cursor handwheel on the CWTDC until the sweep is within one-half inch of the left edge of the CWTDC indicator, making sure that the cursor mils counter remains at 0000 mils.

k. Adjust the CURSOR POSITION variable resistor on the CWTDC control shelf for cursor and sweep coincidence.

l. Push in and rotate the cw cursor handwheel until the sweep is within one-half inch of the right edge of the CWTDC indication, making sure that the cursor mils counter remains at 0000 mils.

m. Adjust the CURSOR RANGE variable resistor on the CWTDC control shelf for cursor and sweep coincidence.

n. Repeat steps i and m above until no further adjustment is necessary.

NOTE

If the normal indications of steps k and m above cannot be obtained within the limits of the CURSOR POSITION and cursor RANGE variable resistors, perform steps o through s below.

o. Adjust the CURSOR POSITION and CURSOR RANGE variable resistors to mechanical center.

p. Remove the left-hand upper cover from the scan servo assembly.

q. Connect a zero-centered dc vtvm to R1-B, pin 5, and ground on the scan servo assembly.

r. Press and rotate the cw cursor handwheel for zero volts on the dc vtvm, insuring that the cursor mils counter remains at 0000 mils.

s. Loosen the clamp on gear 9075707 and carefully adjust the shaft on the counter end of R1 until the CWTDC cursor and sweep are coincident.

t. Tighten the clamp, insuring that the alinement remains correct. Remove the dc vtvm test leads, and repeat steps j through m above.

u. Remove the indexing pin from the drive gear slot in the scan servo assembly.

v. Replace the access covers on the scan servo assembly.
w. Close the CWTDC cover assembly.
x. Reconnect the data cable to J5 of the cable entry enclosure.

8-36. FCC Sweep Resolver B2

a. Place all radars in LOCAL control.
b. Remove the data cable from J5 of the cable entry enclosure.
c. Set the SCAN MODE switch on the CWTDC to NORMAL.
d. Set the test switch on the scan servo amplifier to OPERATE.
e. Open the CWTDC cover assembly for access to the scan servo assembly, and close the interlock switch.
f. Remove the lower left access cover from the scan servo assembly.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.
h. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation to remove mechanical gear error.
i. Position the TCC CORRELATION CURSOR (MILS) counter to 0000 mils.
j. Observe that the TCC sweep and correlation cursor are coincident.
k. Position the center dot of the TCC designate symbol on the TCC sweep at the 60-KM range.
l. Momentarily press the ASSIGN LOW pushbuttons for FCA and FCB on the TCC console.
m. Loosen and rotate resolver B2 on the scan servo assembly until the FCA and FCB sweeps are alined with the center dot of the designate symbol.
n. Tighten resolver B2, insuring that the alinement remains correct.
o. Observe that the FCA and FCB sweeps are displayed at zero (0) mils on the respective indicators. If not, loosen and rotate deflection coil L1 on each FCC for a sweep displayed at zero (0) mils.

WARNING

Extreme caution must be used when adjusting the deflection coils due to the presence of high voltage.

p. Remove the indexing pin from the motor drive gear slot on the scan servo assembly and replace the access cover.
q. Close the CWTDC cover assembly.
r. Reconnect the data cable to J5 on the cable entry enclosure.

8-37. FCA Designate Cursor Resolver B1

a. Place all radars in LOCAL control.
b. Set the FCA SYSTEM ACCURACY TEST switch to OFF. Open the FCA cover assembly and close the interlock switch.
c. Position the TCC CORRELATION CURSOR (MILS) counter to 0000 mils.
d. Position the center dot of the TCC designate symbol on the correlation cursor at the 60-km range.

CAUTION

114 Vac is present at pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

e. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 in the cable entry enclosure.
f. Position the oscilloscope controls as described in paragraph 8-6e.
g. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.
h. Connect the oscilloscope vertical (+) input to pin 15 and the (-) input to pin 17 of TB2 in the cable entry enclosure.
i. Rotate the FCA azimuth cursor handwheel for a horizontal straight line (null) on the oscilloscope.
j. Rotate the handwheel slightly cw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If cw handwheel rotation indicates out of phase (fig. 8-2), rotate the handwheel a sufficient number of revolutions to obtain the second null on the oscilloscope, and perform step k below.

k. Transfer the vertical input from the oscilloscope to the ac voltmeter.
l. Rotate the handwheel slightly for a null on the ac voltmeter.

NOTE

Do not move the handwheel again before completing step o below.

m. Momentarily press the FCA ASSIGN LOW pushbutton on the TCC and observe that the designate symbol is displayed at zero mils azimuth at 60-KM range on the FCA indicator.
n. Loosen and rotate resolver B1 on the FCA cover assembly until the FCA designate cursor is alined with the center dot of the designate symbol on the FCA indicator.
o. Tighten resolver B1, insuring that the alinement remains correct.
p. Remove all test leads from the cable entry enclosure and close the FCA cover assembly.

8-38. FCA Azimuth Designate Synchro B2

a. Place all radars in LOCAL control.
b. Remove the data cable connected to J5 on the cable entry enclosure.
c. Set the test switch on the scan servo amplifier to OPERATE.
d. Set the SCAN MODE switch on the CWTDC to NORMAL.
e. Open the CWTDC cover assembly and close the interlock switch.
f. Remove the lower-left access cover from the scan servo assembly.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.
h. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation, to remove mechanical gear error.
i. Open the FCA cover assembly and close the interlock switch.
j. Set the FCA SYSTEM ACCURACY TEST switch to OFF.
k. Position the TCC CORRELATION CURSOR (MILS) counter to 0000 mils.
l. Momentarily press the FCA ASSIGN LOW pushbutton on the TCC.
m. Position the center dot of the TCC designate symbol on the TCC correlation cursor at the 60-km range.
n. Rotate the FCA azimuth cursor handwheel to aline the FCA designate cursor with the center dot of the TCC designate symbol.

CAUTION

115 Vac is present at pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

o. Connect the oscilloscope horizontal (+) in-put to pin 4 of TB20 in the cable entry enclosure.
p. Position the oscilloscope controls as described in paragraph 8-6e.
q. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.
r. Connect the oscilloscope vertical (+) input to pin 15 and the (-) input to pin 17 of TB2 in the cable entry enclosure.
s. Loosen and rotate synchro B2 on the FCA cover assembly for a horizontal straight line (null) on the oscilloscope.
t. Rotate synchro B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

u. Transfer the vertical input from the oscilloscope to the ac voltmeter.

v. Rotate B2 slightly for a null on the ac volt-meter (100 millivolts maximum)

w. Tighten synchro B2, insuring that the volt-meter does not exceed 100 millivolts.

x. Remove all test leads connected in the cable entry enclosure.

y. Close the FCA cover assembly, and set the SYSTEM ACCURACY TEST switch to OFF.

z. Remove the indexing pin from the scan servo assembly motor drive gear slot, replace the access cover, and close the CWTDC cover assembly.

aa. Momentarily press the FCA elevation LOW pushbutton.

ab. Reconnect the data cable to J5 of the cable entry enclosure.

8-39. FCA Repeat back Synchro B6

a. Place all radars in LOCAL control.

b. Remove the data cable from J5 on the cable entry enclosure.

c. Set the test switch on the scan servo amplifier to OPERATE.

d. Set the SCAN MODE switch on the CWTDC to NORMAL.

e. Open the CWTDC cover assembly and close the interlock switch.

f. Remove the lower left access cover from the scan servo assembly.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

h. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation, to remove mechanical gear error.

i. Position the FCA designate cursor in coincidence with the FCA sweep (O mils), and set the FCA SYSTEM ACCURACY TEST switch to ON.

j. Connect the ac voltmeter to pins 3(+) and 5(-) of TB1 in the FCA cover assembly.

k. Slightly rotate the FCA designate cursor handwheel for a null on the ac voltmeter.

l. Remove the test leads from TB1 in the FCA cover assembly.

m. Remove FCA marker generator A9 from the indicator-control group.

n. Connect the oscilloscope horizontal input to pin 2(+) of TB12 in the cable entry enclosure.

o. Connect the oscilloscope vertical input to pins 1(+) and 2(-) of J18 in the indicator-control group. J18 mates with J2 on the rear of the chassis removed in step m.

p. Position the oscilloscope controls as described in paragraph 8-e.

q. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

r. Loosen and rotate B6 on the scan servo assembly for a horizontal straight line (null) on the oscilloscope.

s. Rotate B6 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B6 180 degrees to obtain the correct null.

t. Transfer the vertical input from the oscilloscope to the ac voltmeter.

u. Rotate B6 slightly for a null on the ac voltmeter (200 millivolts maximum).

v. Tighten B6, insuring that the alinement remains correct.

w. Disconnect all test leads and replace the FCA marker generator in the indicator-control group.

x. Remove the indexing pin from the scan servo assembly and replace the lower left-hand access cover.

y. Close all console covers and place the FCA SYSTEM ACCURACY TEST switch to OFF.

z. Reconnect the data cable to J5 on the cable entry enclosure.

8-40. FCA Predicted Intercept Mark Synchro BS

a. Place all radars in LOCAL control.

b. Remove the data cable from J5 on the cable entry enclosure.

c. Set the SCAN MODE switch on the CWTDC to NORMAL.

d. Open the CWTDC cover assembly, close the interlock switch, and remove the lower left-hand access cover from the scan servo assembly.

e. Open the FCA cover assembly and close the interlock switch.

f. Set the test switch on the scan servo amplifier to OPERATE.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

h. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation, to remove mechanical gear error.

i. Position the FCA designate cursor in coincidence with the FCA sweep (O mils).

j. Set the FCA SYSTEM ACCURACY TEST switch to ON.

k. Connect the ac voltmeter to pins 3(+) and 5(-) of TB1 in the FCA cover assembly.

l. Slightly rotate the FCA designate cursor handwheel for a null on the ac voltmeter.

m. Remove the test leads connected to TB1.

n. Remove FCA predicted intercept marker generator A7 from the indicator-control group.

o. Connect the oscilloscope vertical input to pins 1(+) and 2(-) of J14 in the indicator-control group. J14 mates with J2 on the rear of the chassis removed in step n.

p. Connect the oscilloscope horizontal input to pin 2(+) of TB12 in the cable entry enclosure.

q. Position the oscilloscope controls as described in paragraph 8-6e.

r. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

s. Loosen and rotate B5 on the scan servo assembly for a horizontal straight line (null) on the oscilloscope.

t. Rotate B5 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B5 180 degrees to obtain the correct null.

u. Transfer the vertical input from the oscilloscope to the ac voltmeter.

v. Rotate B5 slightly for a null on the ac voltmeter (200 millivolts maximum).

w. Tighten synchro B5, insuring that the alinement remains correct.

x. Remove all test leads.

y. Replace the access cover on the scan servo assembly and remove the indexing pin from the motor drive gear slot.

z. Close all cover assemblies and replace the FCA predicted intercept marker generator in the indicator-control group.

aa. Set the FCA SYSTEM ACCURACY TEST switch to OFF.

ab. Reconnect the data cable to J5 on the cable entry enclosure.

8-41. FCA Manual Elevation Synchro 81

a. Place all radars in LOCAL control.

b. Remove the access cover from under the FCA control shelf for access to synchro B1, and close the interlock switch.

c. If an IHIPIR is interconnected with the FCA, verify that it is in STANDBY operation.

d. Position the FCA MANUAL ELEVATION control to zero mils, and momentarily press the ELEVATION MANUAL pushbutton on the FCA cover assembly.

CAUTION

115 Vac is present at pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

e. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 in the cable entry enclosure.

f. Position the oscilloscope controls as described in paragraph 8-6e.

g. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

h. Connect the oscilloscope vertical (-) input to pin 12 and the (+) input to pin 14 of TB2 in the cable entry enclosure.

i. Loosen and rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig.8-2), rotate B1 180 degrees to obtain the correct null.

j. Transfer the vertical input from the oscilloscope to the ac voltmeter.

k. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

l. Tighten synchro B1, insuring that the volt-meter indication does not exceed 100 millivolts.

m. Remove all test leads from the cable entry enclosure and replace the FCA control shelf access cover.

8-42. FCA Auto (Low) Elevation Synchro B1

a. Place all radars in LOCAL control.

b. Open the FCA cover assembly. Do not close the interlock switch.

c. If an IHIPIR is interconnected with the FCA, verify that it is in STANDBY operation.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step d below can result in injury to personnel.

d. Insure that the interlock switch on the FCA cover assembly is open, remove relay chassis A10 from the FCA, then close the interlock switch.

e. Loosen the knurled locking screw on the relay chassis. Rotate the dial cw from zero until the mark labeled B1 is alined with the scribe line. Tighten the knurled locking screw.

f. Reconnect P6 in the FCA to J1 on the relay chassis and position the chassis so that access to synchro B1 is possible.

CAUTION

115 Vac is present at pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

g. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 of the cable entry enclosure.

h. Position the oscilloscope controls as described in paragraph 8-6e.

i. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

j. Connect the oscilloscope vertical (-) input to pin 12 and the (+) input to pin 14 of TB2 in the cable entry enclosure.

k. Momentarily press the FCA ELEVATION LOW pushbutton and observe that the FCA LOW pushbutton illuminates.

l. Loosen and rotate B1 on the FCA relay chassis for a horizontal straight line (null) on the oscilloscope.

m. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1). 5

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

n. Transfer the vertical input from the oscilloscope to the ac voltmeter.

o. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

p. Tighten synchro ElB1, insuring that the voltmeter indication does not exceed 100 millivolts.

q. Remove all test leads and jumper leads from the cable entry enclosure.

r. Loosen the knurled locking screw on the FCA relay chassis, position the scale dial to zero mils, and tighten the knurled locking screw.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step s below can result in injury to personnel.

s. Open the interlock switch on the FCA cover assembly, replace the relay chassis in FCA, and close the FCA cover assembly.

8-43. Deleted

8-44. FCA Auto (High) Elevation Synchro B2

a. Place all radars in LOCAL control.

b. Open the FCA cover assembly. Do not close the interlock switch.

c. If an IHIPIR is interconnected with the FCA, verify that it is in STANDBY operation.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step d below can result in injury to personnel.

d. Insure that the interlock switch on the FCA cover assembly is open, remove the relay chassis from the FCA, then close the interlock switch.

e. Loosen both the limit screw and the knurled locking screw on the relay chassis. Rotate the scale dial ccw from zero until the red mark labeled B2 is alined with the scribe mark. Tighten the knurled locking screw.

f. Reconnect P6 to J1 on the FCA relay chassis and position the chassis so that access to synchro B2 is possible.

g. Momentarily press the FCA ELEVATION high pushbutton and observe that the FCA HIGH pushbutton illuminates.

CAUTION

115 Vac is present at pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

h. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 in the cable entry enclosure.

i. Position the oscilloscope controls as described in paragraph 8-6e.

j. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

k. Connect the oscilloscope vertical (-) input to pin 12 and the (+) input to pin 14 of TB2 in the cable entry enclosure.

l. Loosen and rotate synchro B2 on the FCA relay chassis for a horizontal straight line (null) on the oscilloscope.

m. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

n. Transfer the vertical input from the oscilloscope to the ac voltmeter.

o. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

p. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

q. Loosen the knurled locking screw on the FCA auxiliary relay assembly and rotate the scale dial cw to zero mils. Tighten both the knurled locking screw and the limit screw.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step r below can result in injury to personnel.

r. Open the interlock switch on the FCA cover assembly, then replace the relay chassis in the FCA.

s. Remove all test leads and jumper leads from the cable entry enclosure and close the FCA cover assembly.

8-45. FCB Designate Cursor Resolver B1

a. Place all radars in LOCAL control.

b. Set the FC SYSTEM ACCURACY TEST switch to OFF. Open the FCB cover assembly and close the interlock switch.

c. Position the TCC CORRELATION CURSOR (MILS) counter to 0000 mils.

d. Position the center dot of the TCC designate symbol on the correlation cursor at the 60-km range.

CAUTION

115 Vac is present at pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

e. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 in the cable entry enclosure.

f. Position the oscilloscope controls as described in paragraph 8-6e.

g. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

h. Connect the oscilloscope vertical (+) input to pin 16 and the (-) input to pin 18 of TB5 in the cable entry enclosure.

i. Rotate the FCB azimuth cursor handwheel for a horizontal straight line (null) on the oscilloscope.

j. Rotate the handwheel slightly cw and observe that the oscilloscope presentation is in phase (fig.8-1).

NOTE

If cw handwheel rotation indicates out of phase (fig. 8-2), rotate the handwheel a sufficient number of revolutions to obtain the second null on the oscilloscope, and perform step k below.

k. Transfer the vertical input from the oscilloscope to the ac voltmeter.

l. Rotate the handwheel slightly for a null on the ac voltmeter.

NOTE

Do not move the handwheel again before completing step o below.

m. Momentarily press the FCB ASSIGN LOW pushbutton on the TCC and observe that the designate symbol is displayed at zero mils azimuth at 60-km range on the FCB indicator.

n. Loosen and rotate resolver B1 on the FCB cover assembly until the FCB designate cursor is alined with the center dot of the designate symbol on the FCB indicator.

o. Tighten resolver B1, insuring that the alinement remains correct.

p. Remove all test leads from the cable entry enclosure and close the FCB cover assembly.

8-46. FCB Azimuth Designate Synchro B2

a. Place all radars in LOCAL control.

b. Remove the data cable connected to J5 on the cable entry enclosure.

c. Set the test switch on the scan servo amplifier to OPERATE.

d. Set the SCAN MODE switch on the CWTDC to NORMAL.

e. Open the CWTDC cover assembly and close the interlock switch.

f. Remove the lower left access cover from the scan servo assembly.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

h. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation, to remove mechanical gear error.

i. Open the FCB cover assembly and close the interlock switch.

j. Set the FCB SYSTEM ACCURACY TEST switch to OFF.

k. Position the TCC CORRELATION CURSOR (MILS) counter to 0000 mils.

l. Momentarily press the FCB ASSIGN LOW pushbutton on the TCC.

m. Position the center dot of the TCC designate symbol on the TCC correlation cursor at the 60-km range.

n. Rotate the FCB azimuth cursor handwheel to aline the FCB designate cursor with the center dot of the TCC designate symbol.

CAUTION

115 Vac is present on pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

o. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 in the cable entry enclosure.

p. Position the oscilloscope controls as described in paragraph 8-6e.

q. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

r. Connect the oscilloscope vertical (+) input to pin 16 and the (-) input to pin 18 of TB5 in the FCB cover assembly.

s. Loosen and rotate synchro B2 on the FCB cover assembly for a horizontal straight line (null) on the oscilloscope.

t. Rotate synchro B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), 5 rotate B2 180 degrees to obtain the correct null.

u. Transfer the vertical input from the oscilloscope to the ac voltmeter.

v. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

w. Tighten synchro B2, insuring that the voltmeter does not exceed 100 millivolts.

x. Remove all test leads from the cable entry enclosure.

y. Close the FCB cover assembly, and set the SYSTEM ACCURACY TEST switch to OFF.

z. Remove the indexing pin from the scan servo assembly motor drive gear slot, replace the access cover, and close the CWTDC cover assembly.

aa. Momentarily press the FCB elevation LOW pushbutton.

ab. Reconnect the data cable to J5 of the cable entry enclosure.

8-47. FCB Repeatback Synchro B8

a. Place all radars in LOCAL control.

b. Remove the data cable connected to J5 on the cable entry enclosure.

c. Set the test switch on the scan servo amplifier to OPERATE.

d. Set the SCAN MODE switch on the CWTDC to NORMAL.

e. Open the CWTDC cover assembly and close the interlock switch.

f. Remove the lower left access cover from the scan servo assembly.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

h. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation to remove mechanical gear error.

i. Position the FCB designate cursor in coincidence with the FCB sweep (O mils), and set the FCB SYSTEM ACCURACY TEST switch to ON.

j. Open the FCB cover assembly and close the interlock switch.

k. Connect the model 300M ac voltmeter to pins 3(+) and 5 (-) of TB1 in the FCB cover assembly.

l. Slightly rotate the FCB designate cursor handwheel for a null on the ac voltmeter.

m. Remove the test leads from TB1 in the FCB cover assembly.

n. Remove the FCB marker generator from the indicator-control group.

o. Connect the oscilloscope horizontal input to pin 2(+) of TB12 in the cable entry enclosure.

p. Connect the oscilloscope vertical input to pins 1(+) and 2(-) of J34 in the indicator-control group. J34 mates with J2 on the rear of the chassis removed in step n.

q. Position the oscilloscope controls as described in paragraph 8-6e.

r. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

s. Loosen and rotate synchro B8 on the scan servo assembly for a horizontal straight line (null) on the oscilloscope.

t. Rotate B8 slightly cw and observe that the oscilloscope presentation is in phase (fig. 8-1). 5

NOTE

If cw rotation indicates out of phase (fig. 8-2), rotate B8 180 degrees to obtain the correct null.

u. Transfer the vertical input from the oscilloscope to the ac voltmeter.

v. Rotate synchro B8 slightly for a null on the ac voltmeter (200 millivolts maximum).

w. Disconnect all test leads and replace the FCB marker generator in the indicator-control group.

x. Remove the indexing pin from the scan servo assembly motor drive gear shaft, and replace the lower left-hand access cover.

y. Close all console covers and set the FCB SYSTEM ACCURACY TEST switch to OFF.

z. Reconnect the data cable to J5 on the cable entry enclosure.

8-48. FCB Predicted Intercept Mark Synchro B7

a. Place all radars in LOCAL control.

b. Remove the data cable connected to J5 on the cable entry enclosure.

c. Set the SCAN MODE switch on the CWTDC to NORMAL.

d. Open the CWTDC cover assembly, close the interlock switch, and remove the lower left-hand access cover from the scan servo assembly.

e. Open the FCB cover assembly and close the interlock switch.

f. Set the test switch on the scan servo amplifier to OPERATE.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

g. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot in the scan servo assembly.

h. Gently apply pressure to the motor drive gears in the same direction as normal sweep rotation to remove mechanical gear error.

i. Position the FCB designate cursor in coincidence with the FCB sweep (O mils).

j. Set the FCB SYSTEM ACCURACY TEST switch to ON.

k. Connect the ac voltmeter to pins 3(+) and 5(-) of TB1 in the FCB cover assembly.

l. Slightly rotate the FCB designate cursor handwheel for a null on the ac voltmeter.

m. Remove the test leads connected to TB1.

n. Remove the FCB predicted intercept marker generator from the indicator-control group.

o. Connect the oscilloscope vertical input to pins 1(+) and 2(-) of J16 in the indicator-control group. J16 mates with J2 on the rear of the chassis removed in step n.

p. Connect the oscilloscope horizontal input to pin 2(+) of TB12 in the cable entry enclosure.

q. Position the oscilloscope controls as described in paragraph 8-6e.

r. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

s. Loosen and rotate synchro B7 on the scan servo assembly for a horizontal straight line (null) on the oscilloscope.

t. Rotate B7 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig.8-2), rotate B7 180 degrees to obtain the correct null.

u. Transfer the vertical input from the oscilloscope to the ac voltmeter.

v. Rotate B7 slightly for a null on the ac voltmeter (200 millivolts maximum).

w. Tighten synchro B7, insuring that the alinement remains correct.

x. Remove all test leads.

y. Replace the access cover on the scan servo assembly, and remove the indexing pin from the motor drive gear slot.

z. Close all covers and replace the FCB predicted intercept marker generator in the indicator-control group.

aa. Set the FCB SYSTEM ACCURACY TEST switch to OFF.

ab. Reconnect the data cable to J5 on the cable entry enclosure.

8-49. FCB Manual Elevation Synchro B1

a. Place all radars in LOCAL control.

b. Remove the access cover from under the FCB control shelf for access to synchro B1, and close the interlock switch.

c. If an IHIPIR is interconnected with FCB, verify that it is in STANDBY operation.

d. Position the FCB MANUAL ELEVATION control to zero mils, and momentarily press the ELEVATION MANUAL pushbutton on the FCB cover assembly.

CAUTION

115 Vac is present on pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

e. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 in the cable entry enclosure.

f. Position the oscilloscope controls as described in paragraph 8-6e.

g. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

h. Connect the oscilloscope vertical (-) input to pin 13 and the (+) input to pin 15 of TB5 in the cable entry enclosure.

i. Loosen and rotate B1 on the FCB control panel for a horizontal straight line (null) on the oscilloscope.

j. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

k. Transfer the vertical input from the oscilloscope to the ac voltmeter.

l. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

m. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

8-50. FCB Auto (Low) Elevation Synchro B1

a. Place all radars in LOCAL control.

b. Open the FCB cover assembly. Do not close the interlock switch.

c. If an IHIPIR is interconnected with the FCB, verify that it is in STANDBY condition.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step d below can result in injury to personnel.

d. Insure that the interlock switch on the FCB cover assembly is open, remove the relay chassis A10 from the FCB, then close the interlock switch.

e. Loosen the knurled locking screw on the relay chassis. Rotate the dial cw until the mark labeled B1 is alined with the scribe line. Tighten the knurled locking screw.

f. Reconnect P6 in the FCB to J1 on the relay chassis and position the chassis so that access to synchro B1 is possible.

CAUTION

115 Vac is present on pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

g. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 of the cable entry enclosure.

h. Position the oscilloscope controls as described in paragraph 8-6e.

i. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

j. Connect the oscilloscope vertical (-) input to pin 13 and the (+) input to pin 15 of TB5 in the cable entry enclosure.

k. Momentarily press the FCB ELEVATION LOW pushbutton and observe that the FCB LOW pushbutton illuminates.

l. Loosen and rotate B1 on the FCB relay chassis for a horizontal straight line (null) on the oscilloscope.

m. Rotate B1 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B1 180 degrees to obtain the correct null.

n. Transfer the vertical input from the oscilloscope to the ac voltmeter.

o. Rotate B1 slightly for a null on the ac voltmeter (100 millivolts maximum).

p. Tighten synchro B1, insuring that the voltmeter indication does not exceed 100 millivolts.

q. Remove all test leads from the cable entry enclosure.

r. Loosen the knurled locking screw on the FCB relay chassis, position the scale dial to zero mils, and tighten the knurled locking screw.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step s below can result in injury to personnel.

s. Open the interlock switch on the FCB cover assembly, replace the relay chassis in the FCB, and close the FCB cover assembly.

8-51. Deleted

8-52. FCB Auto (High) Elevation Synchro B2

a. Place all radars in LOCAL control.

b. Open the FCB cover assembly. Do not close the interlock switch.

c. If an IHIPIR is interconnected with the FCB, verify that it is in STANDBY operation.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step d below can result in injury to personnel.

d. Insure that the interlock switch on the FCB cover assembly is open, remove the relay chassis from the FCB, then close the interlock switch.

e. Loosen the knurled locking screw on the relay chassis. Rotate the scale dial ccw from zero until the red mark labeled B2 is alined with the scribe mark. Tighten the knurled locking screw.

f. Reconnect P6 to J1 on the FCB relay chassis and position the chassis so that access to synchro B2 is possible.

g. Momentarily press the FCB ELEVATION HIGH pushbutton and observe that the FCB HIGH pushbutton illuminates.

WARNING

115 Vac is present on pin 4 of TB20 (IBCC synchro bus). Be sure that this point does not get grounded.

h. Connect the oscilloscope horizontal (+) input to pin 4 of TB20 in the cable entry enclosure.

i. Position the oscilloscope controls as described in paragraph 8-6e.

j. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

k. Connect the oscilloscope vertical (-) input to pin 13 and the (+-) input to pin 15 of TB5 in the cable entry enclosure.

l. Loosen and rotate synchro B2 on the FCB relay chassis for a horizontal straight line (null) on the oscilloscope.

m. Rotate B2 slightly ccw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If ccw rotation indicates out of phase (fig. 8-2), rotate B2 180 degrees to obtain the correct null.

n. Transfer the vertical input from the oscilloscope to the ac voltmeter.

o. Rotate B2 slightly for a null on the ac voltmeter (100 millivolts maximum).

p. Tighten synchro B2, insuring that the voltmeter indication does not exceed 100 millivolts.

q. Loosen the knurled locking screw on the FCB auxiliary relay assembly and rotate the scale dial cw to zero mils. Tighten the knurled locking screw.

WARNING

15 kv is present on the CRT. Failure to observe the sequence stated in step r below can result in injury to personnel.

r. Open the interlock switch on the FCB cover assembly, then replace the relay chassis in the FCB.

s. Remove all test leads from the cable entry enclosure and close the FCB cover assembly.

8-53. Sweep Resolver Drive Synchro B3

a. Place all radars in LOCAL control.

b. Insure that the CWTDC SCAN MODE switch is set to NORMAL.

c. Disconnect the data cable from J5 on the cable entry enclosure.

d. Open the FCB cover assembly and close the interlock switch.

e. Open the CWTDC cover assembly and close the interlock switch, f If an illuminator radar is interconnected with FCB, verify that the radar is in STANDBY operation, and proceed to step h below.

g. If an illuminator radar is not interconnected with FCB, connect jumper leads between the following points in the cable entry enclosure:

From	*To*
Pin 2, TB12	Pin 14, TB20
Pin 3, TB12	Pin 16, TB20

h. Connect the model 300M ac voltmeter to pins 13(-) and 15(+) of TB5 in the cable entry enclosure.

i. Momentarily press the ELEVATION MANUAL pushbutton on FCB.

j. Position the FCB MANUAL ELEVATION control to zero (0) mils.

k. Slightly adjust the FCB manual elevation control for a null on the ac voltmeter. Remove the test leads from pins 13 and 15 of TB5 in the cable entry enclosure.

NOTE

Do not move the FCB MANUAL ELEVATION control for the remainder of this procedure.

l. Remove the scan servo amplifier from the fire control group.

m. Connect jumper leads between the following points in the cable entry enclosure:

From	*To*
Pin 13, TB5	Pin 17, TB11
Pin 14, TB5	Pin 18, TB11
Pin 15, TB5	Pin 19, TB11

n. Remove the lower left-hand access cover from the scan servo assembly.

o. Insert the indexing pin (attached to the scan servo assembly) into the motor drive gear slot on the scan servo assembly.

NOTE

Manual rotation of the drive gears may be necessary to aline the drive gear slot.

p. Gently apply pressure to the motor drive gear in the same direction as normal sweep rotation, to remove mechanical gear error.

q. Connect the oscilloscope horizontal input to pin 2(+) of TB12 in the cable entry enclosure.

r. Connect the oscilloscope vertical input to pins 11 (-) and 12(+) of J9 in the fire control group. J9 mates with J1 on the rear of the chassis removed in step L.

s. Position the oscilloscope controls as described in paragraph 8-6e.

t. Adjust the oscilloscope horizontal MAGNIFIER (AN/USM-281A), or horizontal VARIABLE (AN/USM-281C) control for eight divisions of horizontal deflection.

u. Loosen and rotate synchro B3 on the scan servo assembly for a horizontal straight line (null) on the oscilloscope.

v. Rotate synchro B3 slightly cw and observe that the oscilloscope presentation is in phase (fig. 8-1).

NOTE

If cw rotation indicates out of phase (fig. 8-2), rotate B3 180 degrees to obtain the correct null.

w. Transfer the vertical input from the oscilloscope to the ac voltmeter.

x. Rotate synchro B3 slightly for a null on the ac voltmeter (200 millivolts maximum).

y. Tighten synchro B3, insuring that the alinement remains correct.

z. Remove all test leads and jumper leads.

aa. Replace the access cover on the scan servo assembly, remove the indexing pin, and close both the FCB and CWTDC console covers.

ab. Replace the scan servo amplifier in the fire control group.

ac. Replace the data cable on J5 of the cable entry enclosure.

APPENDIX A
REFERENCES

Refer to TM -1425-525-L for a list of other publications pertinent to this material and associated equipment.

APPENDIX B
SERIAL NUMBER EFFECTIVITY CODE

B-1. General

The serial number effectivity code is an alphabetical code used to indicate differences among models.

B-2. Symbols Used

Alphabetical symbols are used in the code. The symbol represents the serialization of the major assembly. An asterisk preceding the symbol indicates that the serialization is not of the major assembly, but instead is of the major item in which the assembly is normally located.

B-3. Symbols Not Used

To avoid possible confusion with classification markings, numerals, and certain units of equipment, the symbols (A), (B), (C), (I), (O), (S), and (U) are not used.

B-4. Serial Number Effectivity Code

The following is a list of the code symbols used in this manual.

*(D) BCC s 275001 through 550412 provided MWO 9-1430-1526-50-3 has not been applied.

*(E) BCC s 275001 through 550412 provided MWO 9-1430-1526-50-3 has been applied, and 550413 and up.

*(F) BCC 275001 through 570118 provided MWO 9-1430-1526-50-4 has not been applied.

*(G) BCC 275001 through 570118 provided MWO 9-1430-1526-50-4 has been applied, and 570119 and up.

*(H) CWAR units 275001 through 550412 provided MWO 9-1430-1528-50-3 has not been applied.

*(J) CWAR units 275001 through 540412 provided MWO 9-1430-1528-50-3 has been applied, and 550413 and up.

*(K) LCHR s 275001 through 530233 provided MWO 9-1440-531-50-15 has not been applied.

*(L) LCHR s 275001 through 530233 provided MWO 9-1440-531-5-15 has been applied, and 530234 and up.

*(M) BCC s 275001 through 510245 provided MWO 9-1430-526-50-13 has not been applied.

*(N) BCC s 275001 through 510245 provided MWO 9-1430-526-50-13 has been applied, and 510246 and up.

*(P) BCC s 275001 through 600450 provided MWO 9-1430-1526-50-7 has not been applied.

*(Q) BCC s 275001 through 600450 provided MWO 9-1430-1526-50-7 has been applied and 600451 and up.

*(R) BCCs 275001 through 630451 provided MWO 9-1430-1526-50-9 has not been applied.
HIPIRs (AN/MPQ-46) 175004 through 540170 provided MWO 9-1430-1533-50-1 has not been applied.

*(T) BCC s 275001 through 630451 provided MWO 9-1430-1526-50-9 has been applied and 630452 and up.
HIPIRs (AN/MPQ-57) 570641 through 630451 provided MWO 9-1430-1533-50-1 has been applied and 630452 and up.

*(V) BCC s 275001 through 630451 provided MWO 9-1430-1526-50-10 has not been applied.
HIPIRs (AN/MPQ-57) 570641 through 630451 provided MWO 9-1430-1533-50-2 has not been applied.

*(W) BCC s 275001 through 630451 provided MWO 9-1430-1526-50-10 has been applied and 630452 and up.
HIPIRs (AN/MPQ-57) 570641 through 630451 provided MWO 9-1430-1533-50-2 has been applied and 630452 and up.
Refer to paragraph 1-1 for additional information concerning this effectivity.

*(X) LSCBs 275001 through 730188 provided MWO 9-1440-531-50-21 has not been applied.

*(Y) LSCBs 275001 through 730188 provided MWO 9-1440-531-50-21 has been applied, and 730189 and up.

*(Z) BCCs 275001 through 730188 and HIPIRs (AN/MPQ-57) 570641 through 730188 provided MWO 9-1425-1525-50-17 has not been applied.

*(AA) BCCs 275001 through 730188 and HIPIRs (AN/MPQ-57) 570641 through 730188 provided MWO 9-1425-1525-50-17 has been applied, and BCCs and HIPIRs 730189 and up.

*(AB) LCHRs 275001 through 660350.

*(AC) LCHRs 660351 and up.

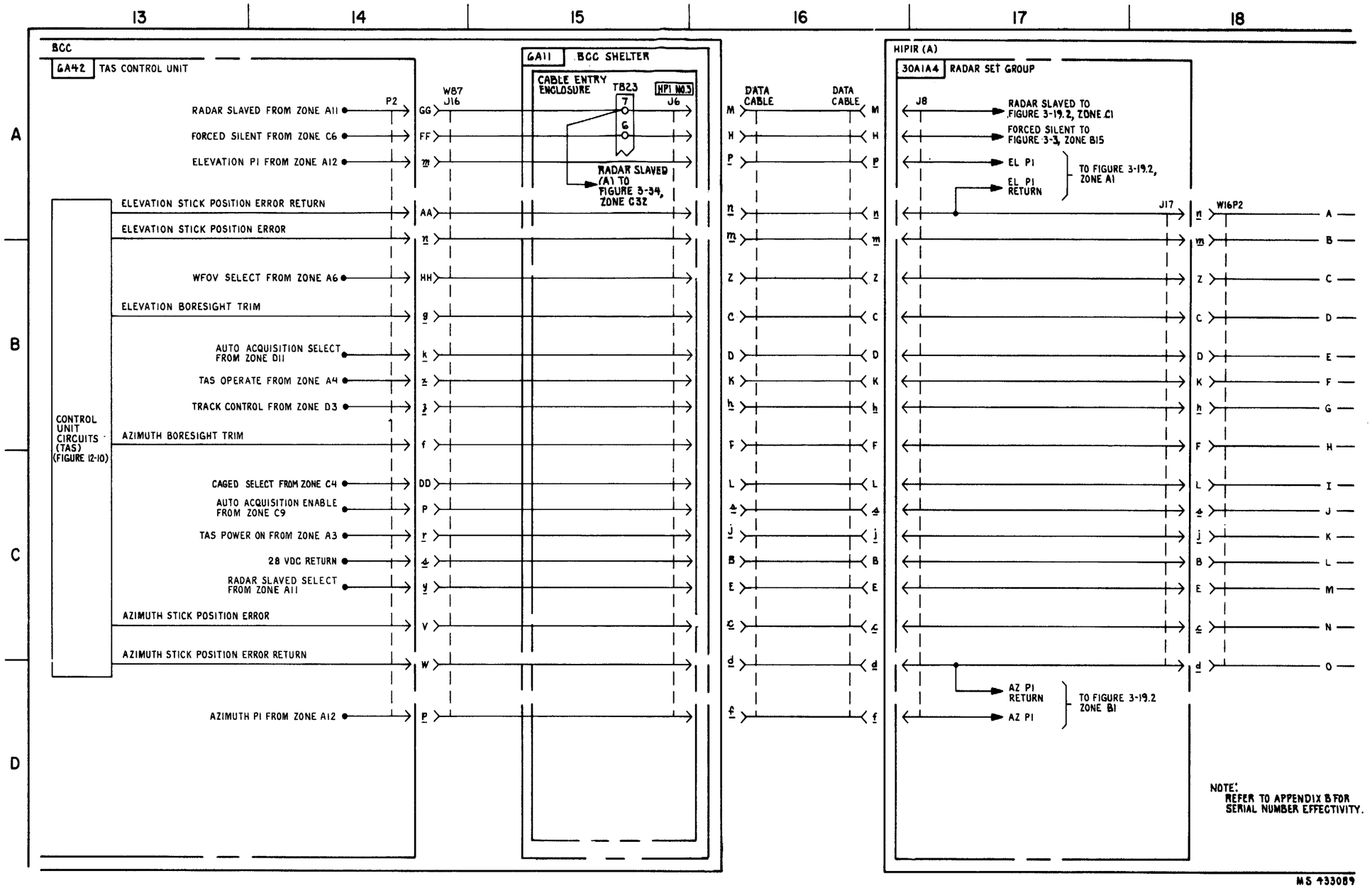


*FIGURE 3-19.1. TAS INTERFACE * (Z) (SEE NOTE) - SYSTEM FUNCTIONAL DIAGRAM (SHEET 3 OF 7).*

3-112.5 (3-112.6 blank)
B-3 (B-4 blank)

APPENDIX C
RELAY BASE DIAGRAMS

This appendix contains relay base diagrams for all relays depicted within this TM. The assemblies of all major items concerned are listed with their respective shown relays. Adjacent to each assembly/relay entry is a reference to a figure contained within this appendix.

Designator	Figure
CWAR	
3A4A5K1	C-2
3A4A5K2	C-12
3A4A6K1	C-1
3A4A9K1	C-2
3A4A9K2	NA
PAR	
6A5A2K1 thru K10	C-5
4A1K5	C-4
4A5K11	C-11
4A5A3K1	C-5
4A5A3K3	C-5
4A5A3A2A1K1 thru K12	NA
6ASA15K2, K3	C-5
ROR	
5A1A6K3, K4	C-3
5A5A1A3K1	C-3
5A5A1A3K2	C-5
5A5A1A3K3	C-3
5A5A1A3K4	C-5
5A5A1A3K5	C-3
5A5A1A3K6	C-5
5A5A1A3K7	C-3
5A5A1A3KS	C-5
5A5A1A3K9	C-21
5A5A1A3K10	C-5
5A5A1A3K11	C-3
5A5A1A3K12	C-5
5ASA1A3K13	C-3
5A5A1A3K14	C-5
5A5A1ABK15	C-21
5A5A1A3K16	C-5
5ASA1A3K17	C-3
6A5A1A3K18	C-5
5A5A1A3K19	C-3
5A5A1A3K20 thru K23	C-5
5A5A2A1K2	C-5
SA5A2A4K1	C-3
5A5A2A5K1	C-3

Designator	Figure
BCC	
6A1A7K1	C-4
6A1A7A1K1	NA
6A1A10K2, K3	C-3
6A1A1K1	C-5
6A1A12K1 thru K3	C-14
6A4A9K1	C-5
6A5A2K16	C-14
6A5A2K19	C-5
6A5A4A16K1	NA
6A5A4A18K3	NA
6A5A8K1	C-5
6A5A17K4	C-5
6A6A1K thru K3	C-14
6A6A7K1 thru K3	C-5
6A6A7K5,K6	C-5
6A6A7K17 thru K20	C-5
6A6A7K21, K22	C-5
6A6A9K1 thru K9	C-5
6A10A4K2	C-13
6A10A4K4	C-5
6A12K5 thru K11	C-14
6A12K13, K14	C-5
6A12K18, K19	C-5
6A12K20	C-14
6A12K23, K24	C-5
6A12K25 thru K28	C-14
6A23K3	C-22
6A23K4 thru K6	C-5
6A23K7	C-22
6A23K8 thru K10	C-5
6A30K1 thru K3	C-24
6A30A3K1	NA
6A30A15K1	NA
6A30A15K2	NA

Designator	Figure
LSCB	
30A1A4A6K1	C-6
7A1K1, K2	C-10
7A1A1K1	NA
7A1A2K1	NA
7A1A3K1	NA
7A1A6K3, K4	C-14
LCHR	
30A1A4A13A1K13	C-16
9A1A1A1K4	C-9
9A1A1A1K24 thru K31	C-20
9A1A2K2, K3	C-9
9A1A2K6, K8	C-9
9A1A2K13 thru K9	C-20
9A3A2K55 thru K57	C-14
HIPIR	
30A1A1A10K2	C-8
30A1A1A11K2	C-20
30A1A4A1A2K2	C-14
30A1A4A1A2K5	C-14
30A1A4A5K1	C-7
30A1A4A5K2	C-23
30A1A4A5K3	C-5
30A1A4A5K4	C-7

Designator	Figure
30A1A4A5K5	C-5
30A1A4A6K2	NA
30A1A4A13A1K3	C-15
30A1A4A13A1K5, K6	C-15
30A1A4A13A1K8	C-4
30A1A4A13A1K9	C-11
30A1A4A13A1K10 thru K12	C-15
30A1A4A13A1K14	C-17
30A1A4A13A1K15, K16	C-15
30A1A4A13A1K19	C-11
30A1A4A13A2K1	C-18
30A1A4A15A2K3	C-14
30A1A4A18K1	C-9
ICC	
53A2ASK1	NA
53A2A3K2	NA
563A2A3K3	NA
53A2A4K4	C-14
53A2A4K6	NA
63A2A6A1K1, K2, K4	NA

C-1/C-2 blank

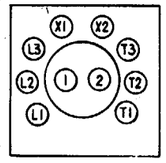
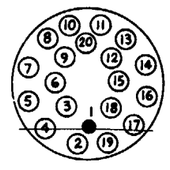


FIGURE C-1.

FIGURE C-5.



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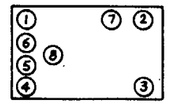

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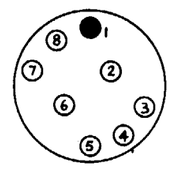

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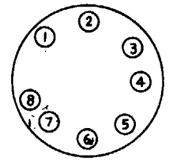
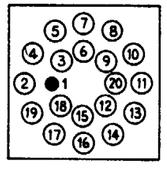


FIGURE C-21.



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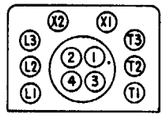

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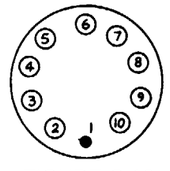

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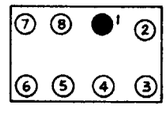

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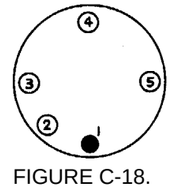

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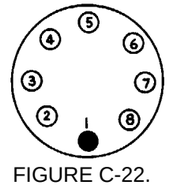

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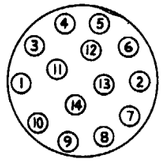

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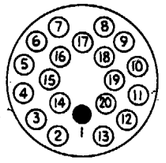

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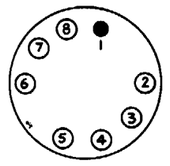

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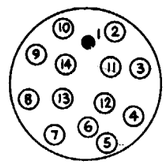
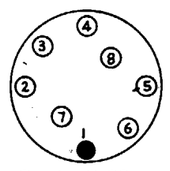


FIGURE C-15.

FIGURE C-19.



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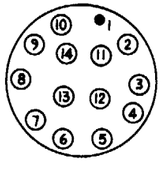

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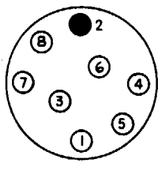

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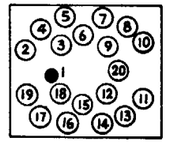

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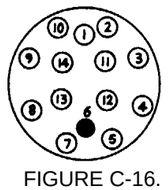

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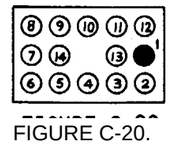

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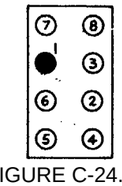

FIGURE C-24.

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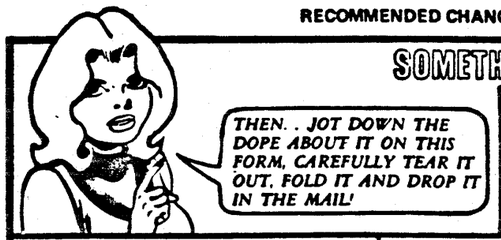

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