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RECIP.NAME RECIPIENT AFFILIATION
BUTLER,W.R. Licensing Branch 2

SUBJECT: Forwards response to 850723 request for addl info in support of Tech Spec exemption to allow diesel generator removal from svc for 60 days, "Design Criteria,500 kV Steel Pole Structure Transmission Lines," encl.

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AUG 07 1985

Director of Nuclear Reactor Regulation
Attention: Dr. W. R. Butler, Chief
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
ADDITIONAL INFORMATION FOR PROPOSED
AMENDMENT NO. 58 TO NPF-14 AND
PROPOSED AMENDMENT NO. 13 TO NPF-22
ER 100450/100508 FILE 841-8
PLA-2514

Docket Nos. 50-387
50-388

Dear Dr. Butler:

On July 23, 1985 PP&L met with members of your Staff to discuss our request for a one time Technical Specification exemption which would allow the diesel generators to be removed from service, one at a time, for an accumulated period of 60 days.

In response to requests made during that meeting, the attached document provides the following information:

- Overview of the Offsite Power Sources and a Portion of the Internal Electric Distribution to Susquehanna SES
- Comparison Table of an existing Susquehanna diesel generator and the new fifth diesel generator.
- A write-up (including copies of some slides used in the July 23 meeting) which walks through the tie-in of the fifth diesel.
- A report entitled "Design Criteria - 500kV Steel Pole Structure Transmistion Lines"
- Appendices A thru D which are the supporting calculations for the Probabilistic Evaluation presented previously in PLA-2346, dated December 21, 1984. Please note these calculations are conservative and do not consider Station Blackout procedures or calculations.
- A letter which evaluates the frequency of loss of off-site power at Susquehanna SES.

A001
1/1

In addition to the above information a question was raised regarding procedures to be utilized in performing the LCO work. Those procedures will be in a final draft form for NRC review and walkdown on August 30, 1985.

We request that this Technical Specification change be approved by November 1, 1985.

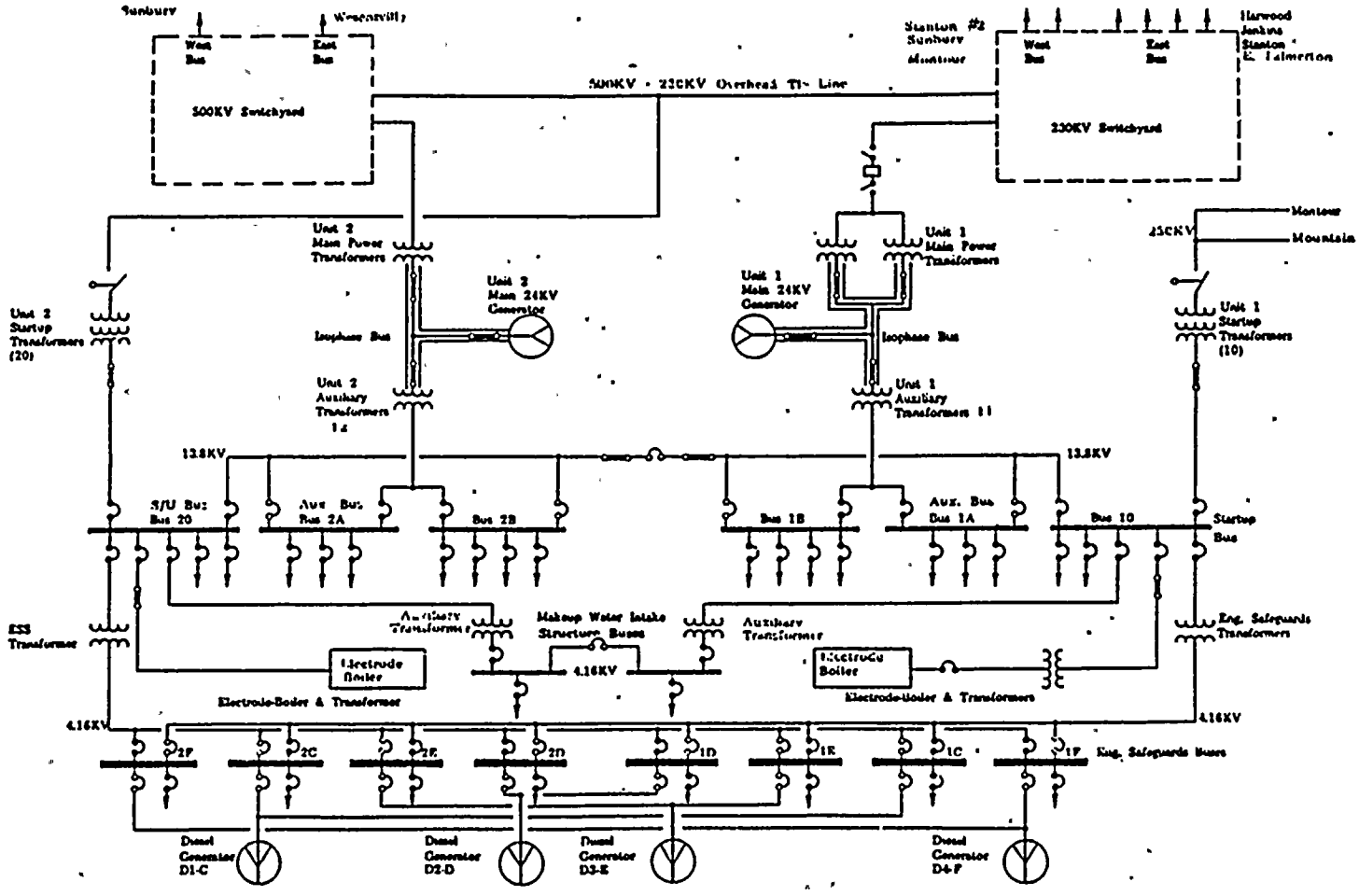
If you have any questions, please contact D. J. Walters at (215) 770-7861.

Very truly yours,

N. W. Curtis
Vice President-Engineering and Construction-Nuclear

Attachments

cc: M. J. Campagnone USNRC
R. H. Jacobs USNRC
C. Anderson USNRC



DIESEL GENERATOR

	EXISTING D/G	5TH D/G
DIESEL MANUFACTURER	COOPER-BESSEMER	COOPER-BESSEMER
TYPE	KSV-16-T	KSV-20-T
BHP	6135	6972
SPEED	600 RPM	600 RPM
GENERATOR MANUFACTURE	ELECTRIC PRODUCTS	ELECTRIC PRODUCTS
RATED	4000 KW	5000 KW
VOLTAGE	4160 VAC	4160 VAC
FUEL OIL DAY TANK CAPACITY	550 GAL.	550 GAL.*
FUEL OIL STORAGE TANK CAPACITY	50,000 GAL.	80,000 GAL.

*ORIGINAL DESIGN CALLED FOR 650 GAL. SUBSEQUENTLY CHANGED TO 550 GAL.

G84I:LW

The addition of the "E" diesel generator to the Susquehanna Steam Electric Station results in modifications to the existing on site electrical distribution system and existing control and instrumentation circuits.

ELECTRICAL DISTRIBUTION SYSTEM

The SSES on site electrical distribution system is described in Chapter 8.0 of the FSAR. Figure No. 1 represents a simplified single line diagram of the existing on site electrical distribution system. Figure No. 2 indicates the modifications to the on site distribution system and the associated interface between the existing system and the new "E" diesel generator facility.

CONTROL AND INSTRUMENTATION CIRCUITS

A simplified elementary diagram representation of a typical control and instrumentation transfer scheme associated with "E" diesel generator facility is shown in Figure No. 3. Figure No. 4 indicates the typical transfer scheme aligned for diesel generator "A" operation. Figure No. 5 indicates the typical transfer scheme aligned for diesel generator "E" operation.

The physical implementation of the "E" diesel generator tie into the existing diesel generator bays is accomplished in three phases. Phase A, includes the scope of work which is performed prior to entering a limiting condition of operation. Phase B, includes the scope of work which is performed during a limiting condition of operation. Phase C, which is the final phase, includes the scope of work which is performed to tie-in the "E" diesel generator to the transfer points which were installed during the Phase A activities.

The following description of the three phase implementation is presented in a single bay format since the implementation of the scope of work is analogous for each bay of the existing diesel generator building. The description is divided into the activities associated with the 4.16 kV system and the activities associated with the control and instrumentation system. Bay A was chosen as the basis. The description does not present specific details such as individual conduit runs, mounting of equipment, or subcomponents, etc. Instead, the description presents the overall concepts.

EXISTING

Figure No. 6 represents the existing configuration of the "A" diesel generator. 4.16 kV cables from the "A" generator enter one end of 0C520A from the bottom and terminate on bus bar within the cabinet. The bus bar runs the length of 0C520A where potential transformers and current transformers are mounted. At the opposite end of 0C520A from the generator leads, the bus bifurcates to supply power to the Unit 1 and Unit 2 safety related 4.16 kV buses. Figure No. 6 also depicts a typical control or instrumentation circuit which would contain a signal that originated in the control room and terminated in the diesel generator panel 0C521A. The routing of this typical circuit includes raceway which has an existing junction box or a pull box.

PHASE A

The first phase is presented in Figure No. 7. As previously indicated, this phase represents activities which would be accomplished prior to entering a limiting condition of operation.

4.16 kV System

Two (2) cubicles of switchgear 0A510A one (1) circuit breaker are to be installed on elevation 710'9". Four six inch conduits from this new switchgear to 0C520A are to be installed. 5 kV cables are to be pulled between 0A510A and 0C520A with the terminations completed at the 0A510A end. Two six inch conduits are to be installed between 0A510A and the newly installed duct bank which runs to the "E" diesel generator.

Control and Instrumentation System

A transfer panel 0C512A containing the transfer switches is to be installed on elevation 710'9" adjacent to the 4.16 kV switchgear 0A510A. Cable tray is to be installed below the panel to facilitate cable pulling and entry into the panel. The tray system extends down the west wall of the bay to elevation 660' and eastward to the East Wall where the new duct banks enter the Bay. Terminal boxes are to be mounted in close proximity to the existing junction boxes. Conduits are to be partially completed from the junction boxes to the terminal boxes and from junction boxes to cable tray. Conduits from the terminal boxes to the cable tray are to be completed. With this physical configuration, cables are to be pulled from the terminal boxes to the transfer panel 0C512A and terminated at both ends. Cables are also to be pulled from the transfer panel 0C512A to the uncompleted conduit runs between the junction boxes and the cable tray. These uncompleted cable pulls are to be terminated at 0C512A and coiled in the tray system. The transfer panel 0C512A is physically configured so that all of the cables associated with Phase A will terminate on one side of the panel and those cables associated with Phase C will terminate on the opposite side.

Upon completion of Phase A the actual transfer points (i.e., switchgear 0A510A and transfer panel 0C512A) have been installed but no ties have been established to operating equipment.

PHASE B

The second phase is presented in Figure No. 8. This phase represents activities which would be accomplished during a limiting condition of operation.

4.16 kV System

The bus bars in 0C520A are to be cut and a section removed. The newly installed 5 kV cables are to be connected to their respective sections of the bus. The single breaker of the switchgear 0A510A is to be operable in the cubicle designated for the "A" diesel generator. This configuration permits the power output of the "A" diesel generator to go through the transfer point 0A501A and back to 0C520A before supplying the Unit 1 and 2 4.16 kV safety related buses.

Control and Instrumentation System

The conduit runs between the terminal boxes and the junction boxes and between the cable tray system and the junction boxes are to be completed. The existing cable running through the junction box are to be determinated, pulled back to the junction box, re-routed through the newly completed conduit(s) to the terminal boxes and reterminated in the terminal boxes. The uncompleted cable pulls from Phase A are to be pulled through the newly completed conduit to the junction box and through existing conduits to the end device such as 0C521A. At the end device, the cable are to be terminated. The transfer switches in 0C512A are to be aligned for the "A" diesel generator's operation. This configuration permits a signal to go through the transfer point 0C512A prior to becoming part of the "A" diesel generator control and instrumentation system.

Upon completion of Phase B, the existing equipment is connected to the transfer points installed as part of Phase A. Specific alarm circuits are installed and actuated to assure proper alignment of the transfer points.

PHASE C

The final phase is presented in Figure No. 9. This phase represents activities which would be accomplished after the limiting condition of operation.

4.16 kV. System

5 kV cables are to be pulled between 0A510A and the switchgear in the "E" diesel generator building through the six inch conduits installed under Phase A. The cables are to be terminated at both ends.

Control and Instrumentation System

Control and instrument cables are to be pulled between 0C512A and the transfer panel 0C512E-A in the "E" diesel generator through the cable tray and conduit system installed under Phase A. The cables are to be terminated at both ends.

At the completion of the final phase, the existing equipment associated with the "A" diesel generator and the new equipment associated with the "E" diesel generator are tied to the transfer points. An alignment circuit at the transfer points in the existing diesel generator building and the new "E" diesel generator facility assures proper alignment of all transfer points.

. mlm/rpg201c/r1a

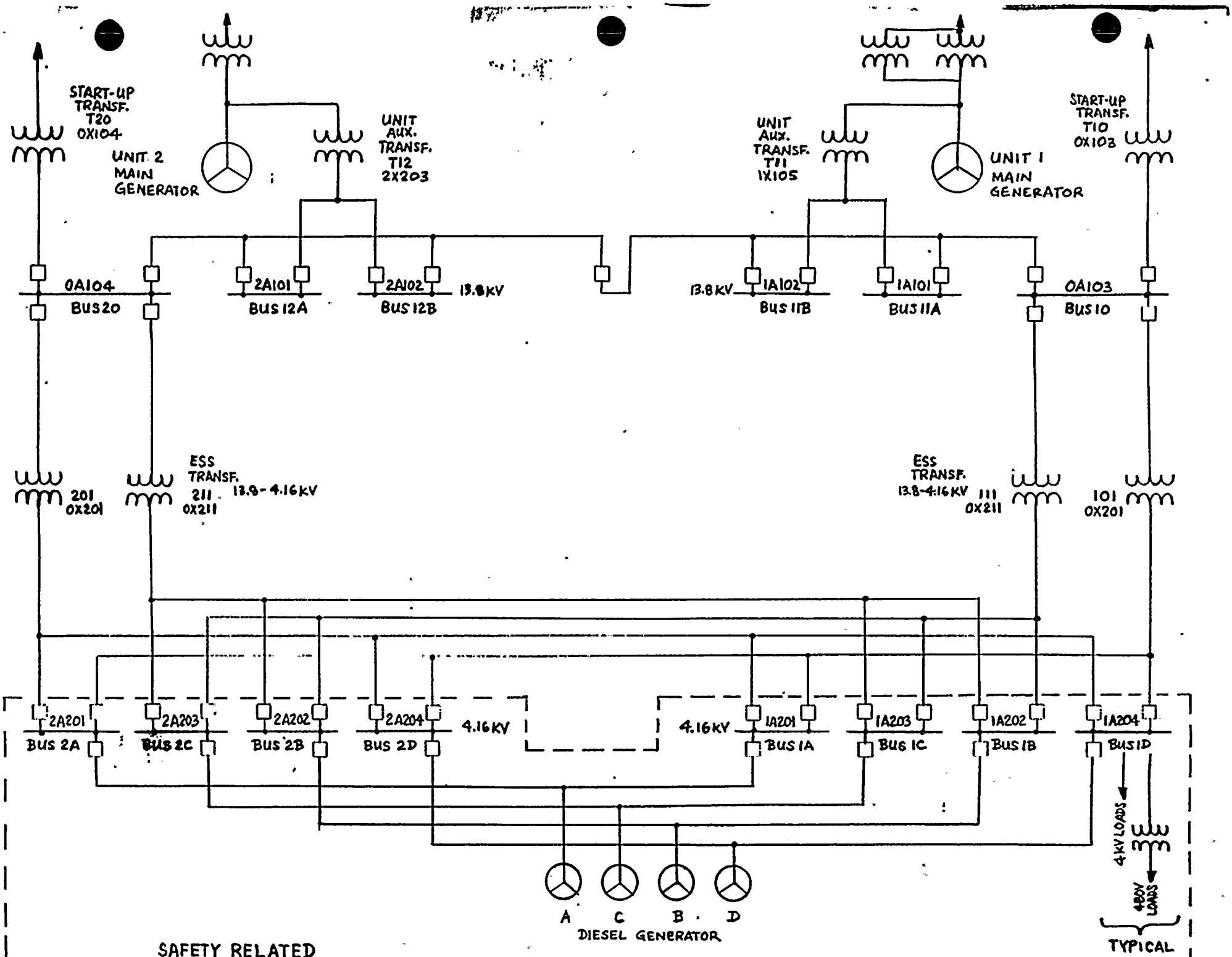

START-UP TRANSF. T20 0X104
UNIT 2 MAIN GENERATOR
UNIT AUX. TRANSF. T12 2X203
UNIT AUX. TRANSF. T11 1X105
UNIT 1 MAIN GENERATOR
START-UP TRANSF. T10 0X103
0A104 BUS 20
2A101 BUS 12A
2A102 BUS 12B
13.8KV
13.8KV
1A102 BUS 11B
1A101 BUS 11A
0A103 BUS 10
201 0X201
ESS TRANSF. 211 0X211 13.8-4.16KV
ESS TRANSF. 13.8-4.16KV 111 0X211
101 0X201
2A201 BUS 2A
2A203 BUS 2C
2A202 BUS 2B
2A204 BUS 2D
4.16KV
4.16KV
1A201 BUS 1A
1A203 BUS 1C
1A202 BUS 1B
1A204 BUS 1D
4KV LOADS
480V LOADS
TYPICAL
A C B D
DIESEL GENERATOR
SAFETY RELATED

FIG. NO. 1

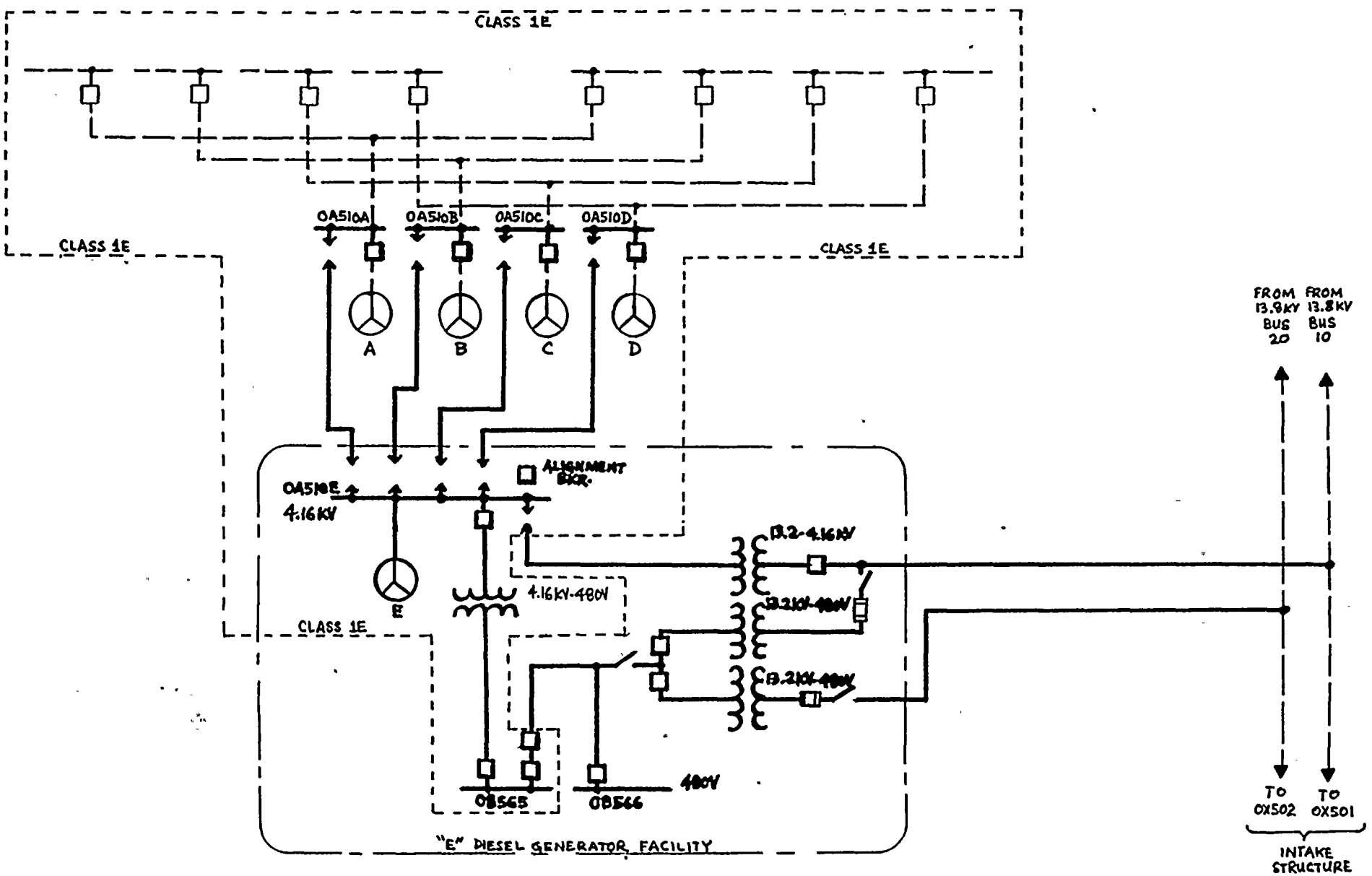
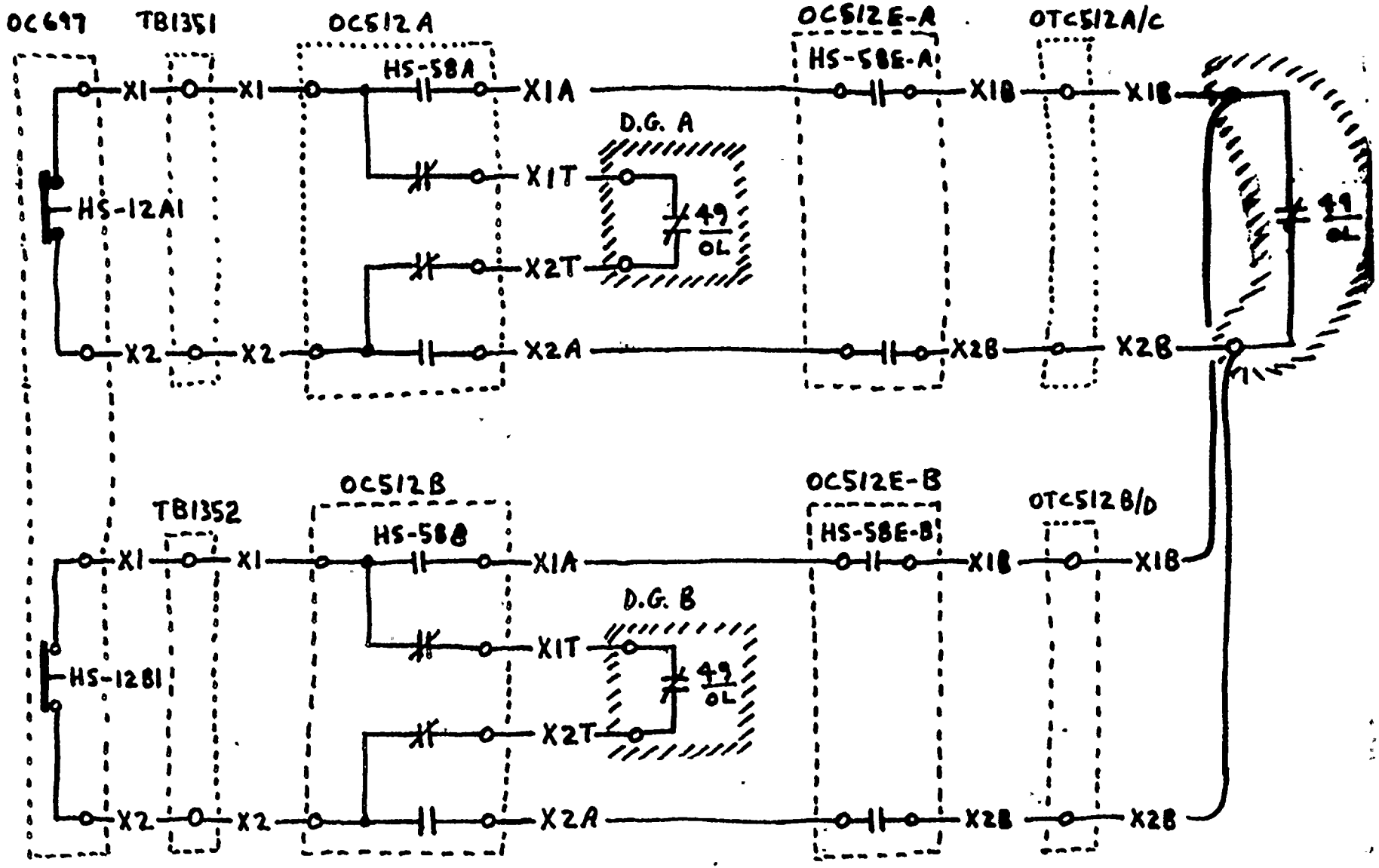

CLASS 1E
CLASS 1E
CLASS 1E
CLASS 1E
0A510A
0A510B
0A510C
0A510D
A
B
C
D
0A510E
4.16KV
ALIGNMENT BKR.
E
4.16KV-480V
13.2-4.16KV
13.2KV-480V
13.2KV-480V
480V
0B565
0B566
"E" DIESEL GENERATOR FACILITY
FROM 13.8KV BUS 20
FROM 13.8KV BUS 10
TO 0X502
TO 0X501
INTAKE STRUCTURE

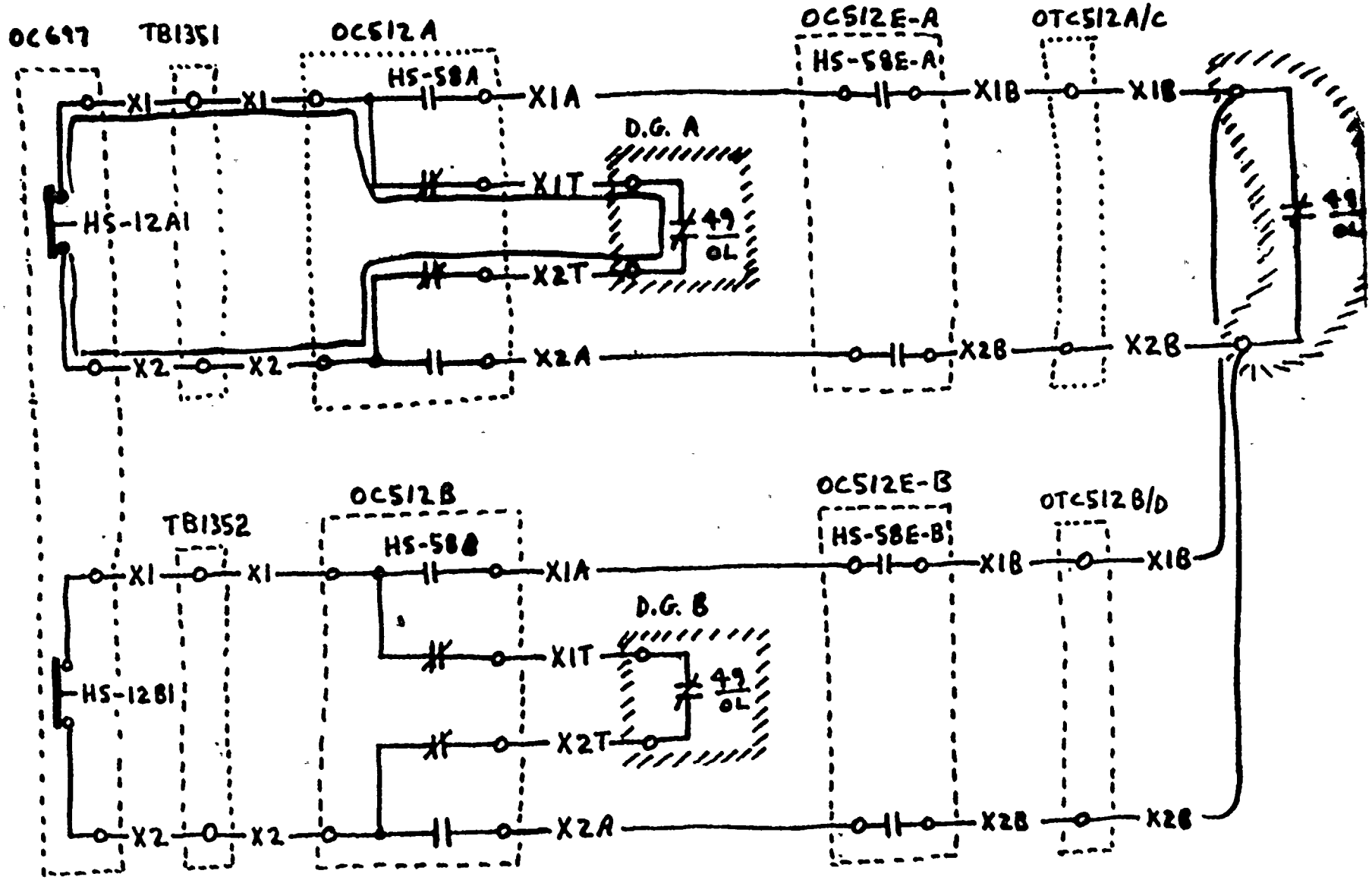
FIG. NO. 2



Simplified Transfer Scheme

FIG. NO. 3

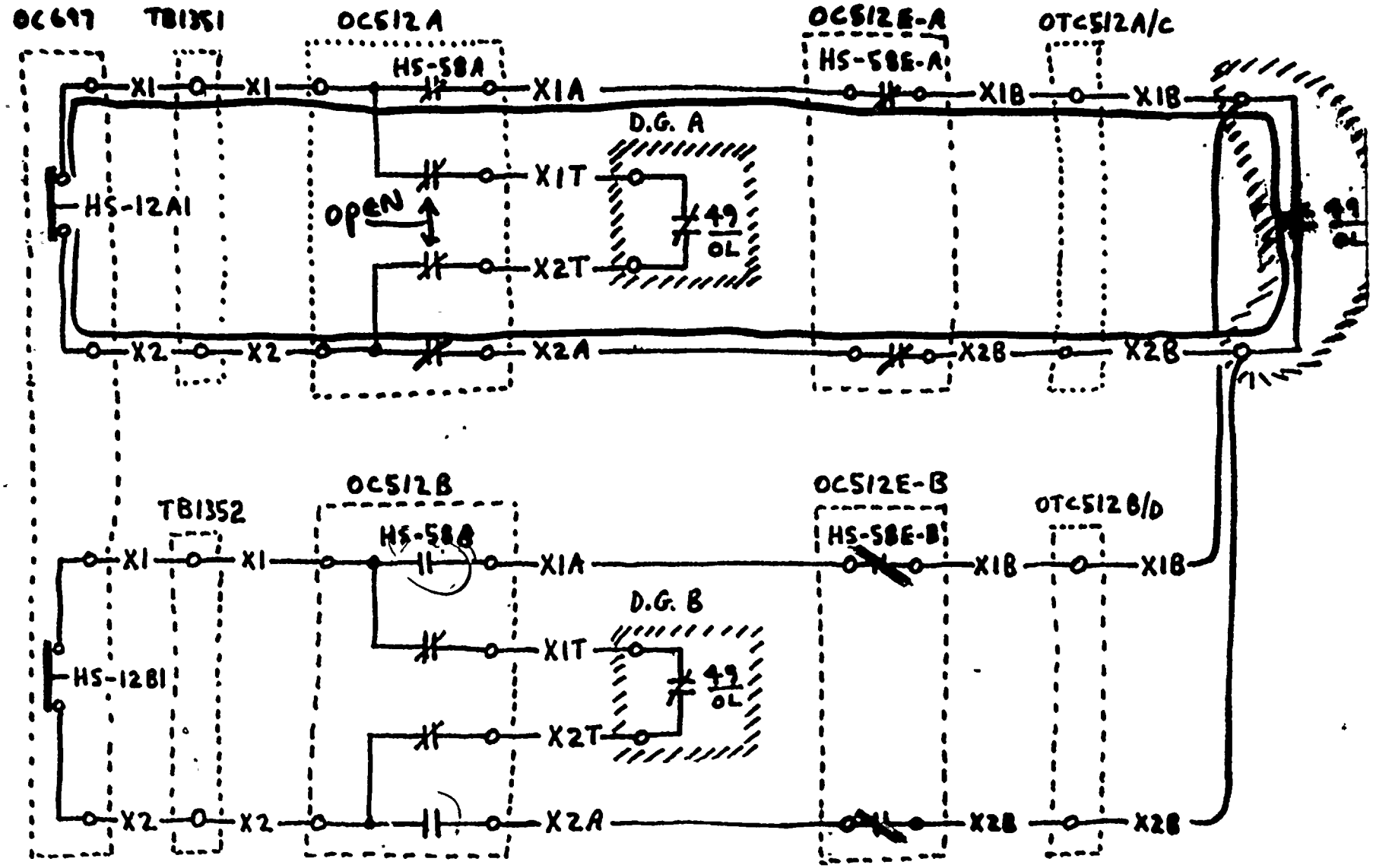
'A' IN-SERVICE



Simplified Transfer Scheme

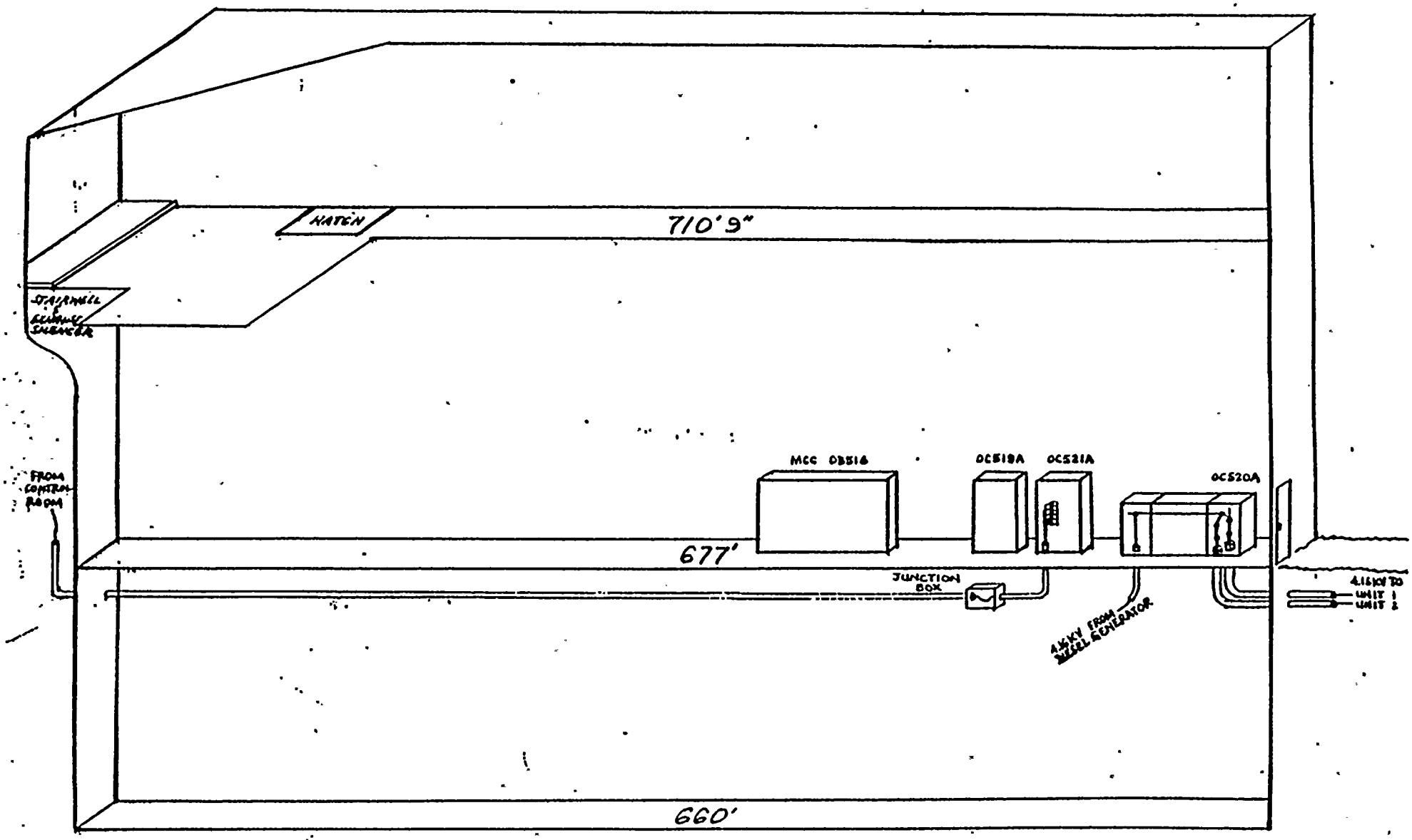
FIG. NO. 4

E substituted for A

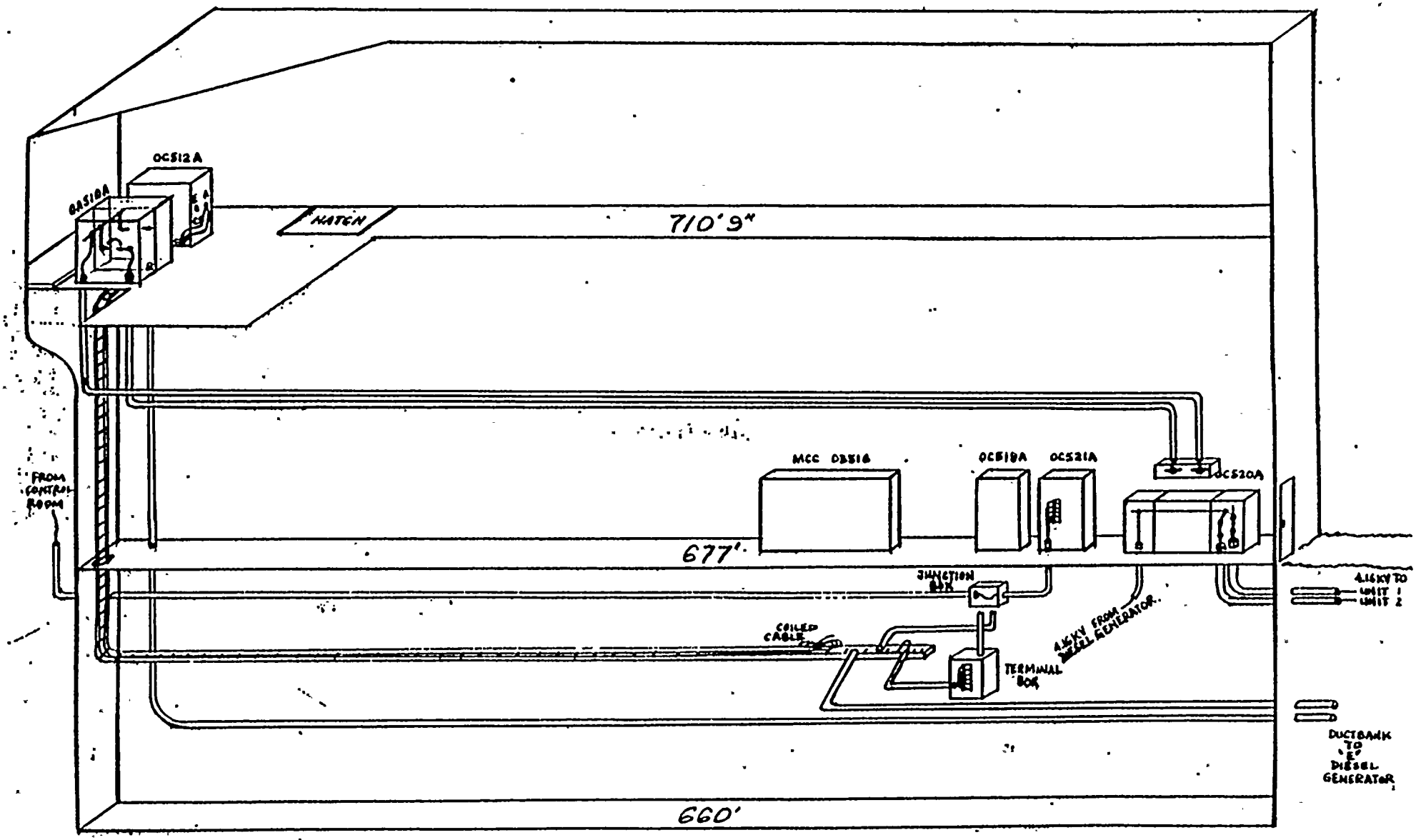


Simplified Transfer Scheme

FIG. NO. 5

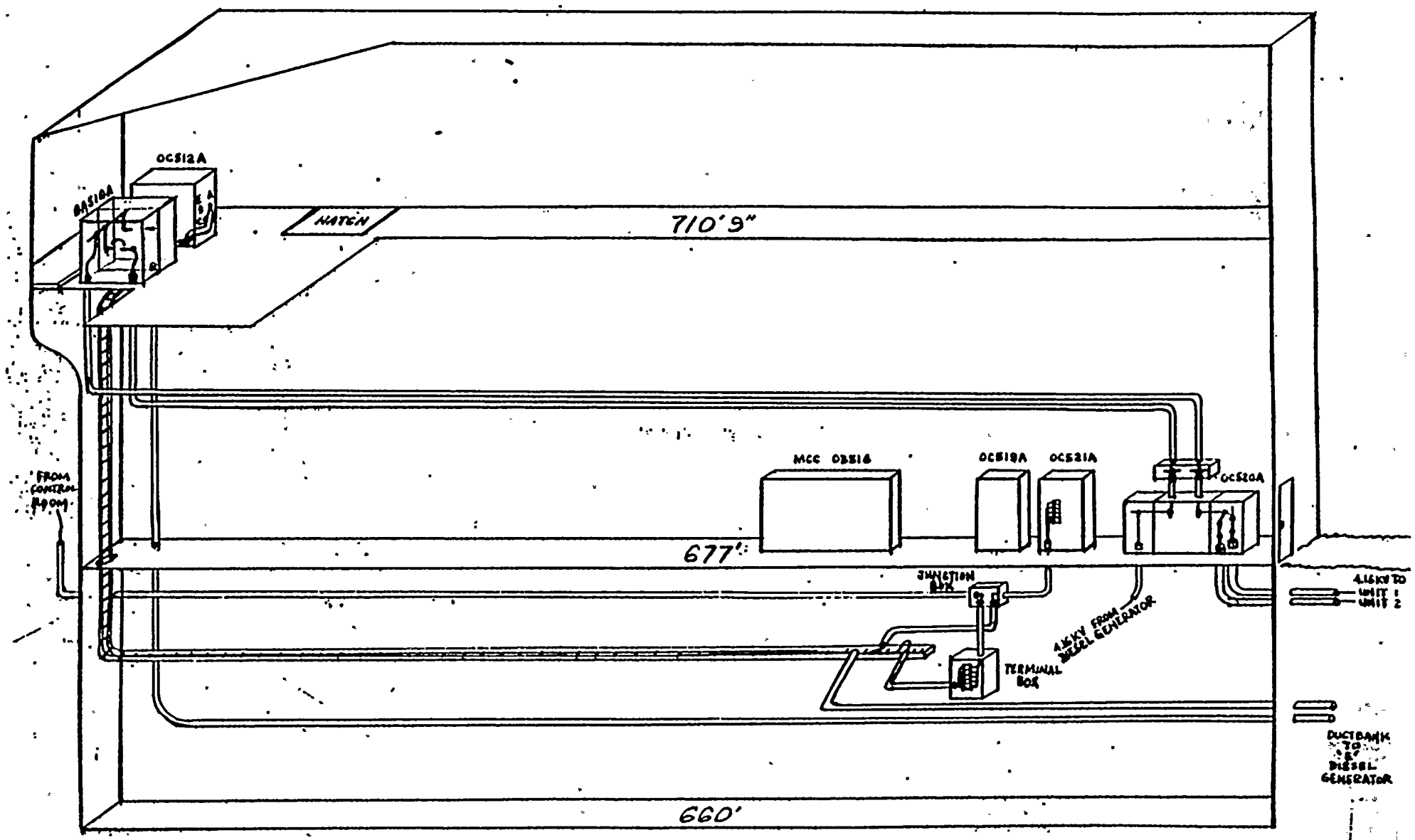


EXISTING
FIG. NO. 6



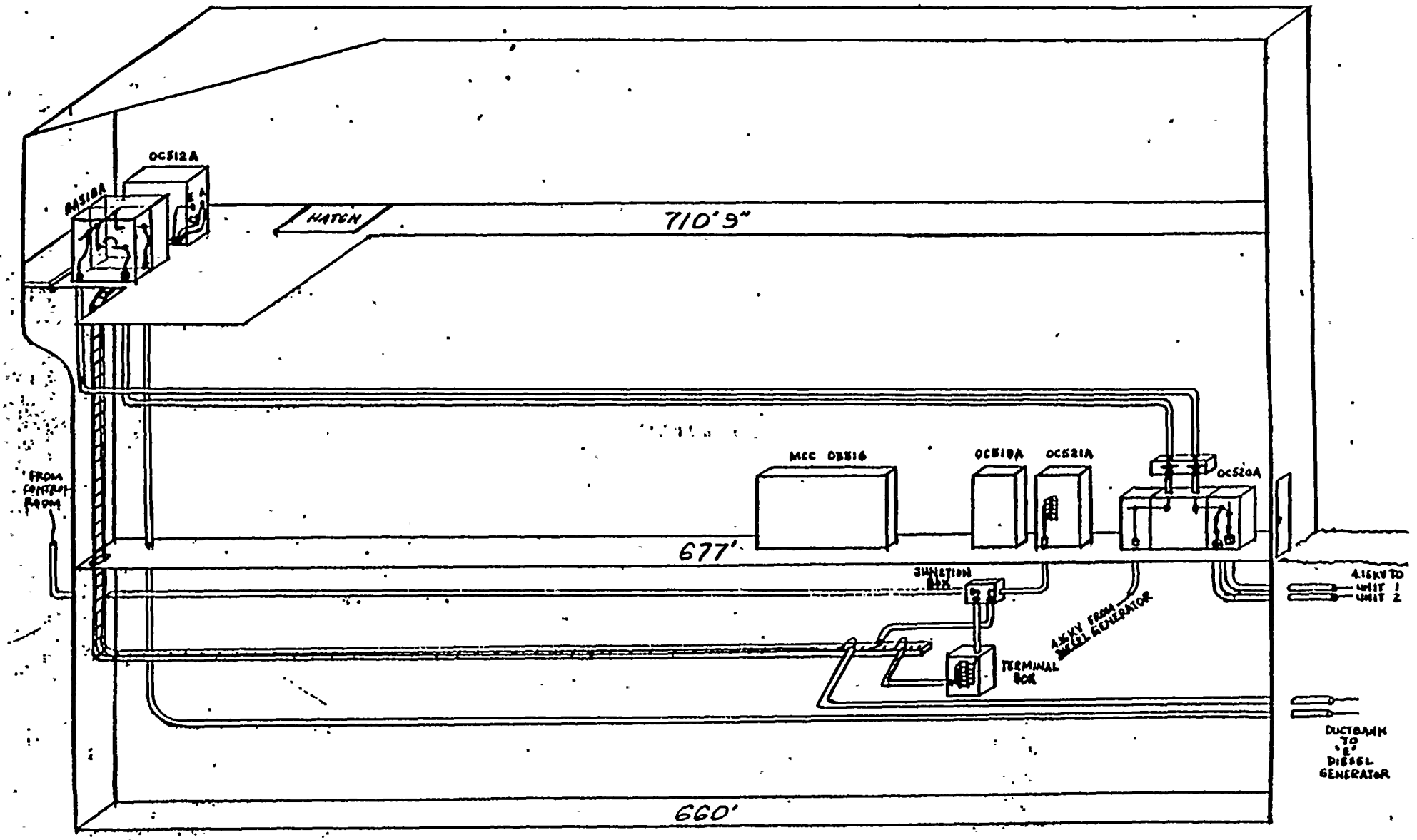
PRE-L.C.O.

PHASE 'A'
FIG. NO. 7



L.C.O.

PHASE 'B'
FIG. NO. 8



POST - L.C.O.

PHASE 'C'

FIG. NO. 9