



AR10 - D14 TRACTION GENERATOR – RECTIFIER BANK ASSEMBLIES AND SUPPRESSION CIRCUITS

CAUTION

Do not perform high potential tests on diodes, either individually or collectively.

If a high potential test is to be performed on the locomotive or generator, all positive and negative generator buses must be shorted together, and the brushes at the slip rings connected together to prevent high potential from being applied to the controlled rectifier assembly SCR.

Operation of the AR10 generator without load is not recommended, and should be restricted to an absolute minimum; but under no circumstances allow no-load voltage to exceed 800 V DC, and never operate the generator with the inspection doors open or panels removed.

INTRODUCTION

The AR 10 traction generator is a 3-phase alternator, the rotor of which makes up a 10 pole DC excited field. Two sets of "Y"-connected windings make up the alternator stator. The arrangement results in two separate sources of 3-phase AC output, each independently rectified by an assembly of heat-sink mounted silicon diodes. Two types of rectifier assembly frames are now being used. The fabricated type frame is shown in Fig. 1. The molded type is shown in Fig. 2.

Fuses are provided to isolate diodes that may become shorted, and the operating coil of a protective relay is connected across the neutral points of the stator windings to detect a single phase condition. The relay coil is also connected through resistance to ground to detect generator or locomotive grounds.

At the slip ring end of the machine, one rectifier bank assembly is to the left and the other to the right of the slip rings. Each assembly consists of:

1. A positive and a negative heat sink and bus bar assembly.
2. A mounting frame.

3. An equal number of positive base diodes and negative base diodes.
4. Interrupting fuses.

Capacitors and resistors for suppression of voltage spikes of a transient nature are located within the generator airbox, either on the airbox wall or on the generator end housing. Refer to Fig. 3 and Fig. 4.

Most models of the AR 10 main generator are equipped with current transformers mounted on the generator end plate. There are three transformers, one for phase "A," one for phase "B," and one for phase "C" at the AC side of the rectifier banks. AC current as sensed by the transformers is proportional to DC current at the main generator busses. As such, it provides a signal that is proportional to DC current output from the main generator. When the locomotive control system is equipped with a performance control panel PCP or a performance control module, the generator mounted transformers, along with a cabinet mounted potential transformer, provide signals for control of generator excitation and power output. On those AR10 generators that are not equipped with current transformers, a cabinet mounted main generator

*This bulletin is revised and supersedes previous issues of this number.

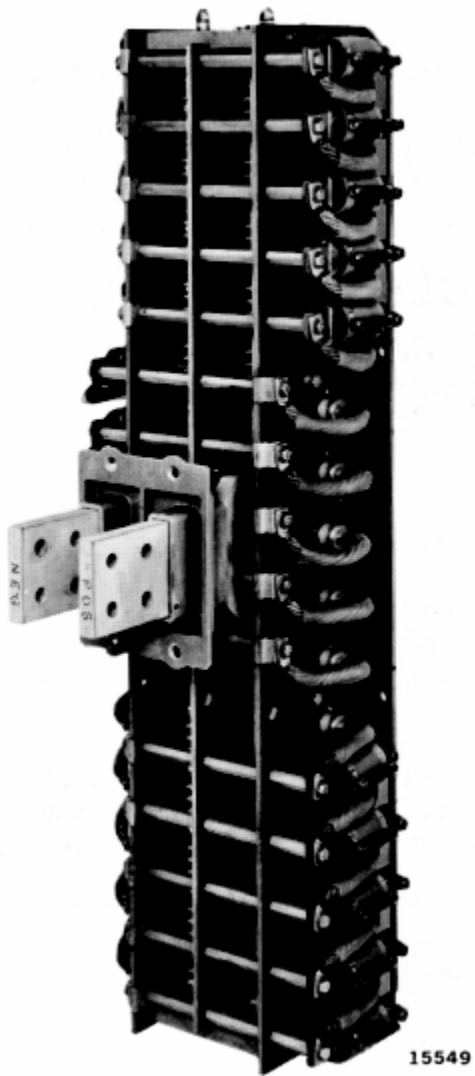


Fig. 1 - Fabricated Type Rectifier Assembly

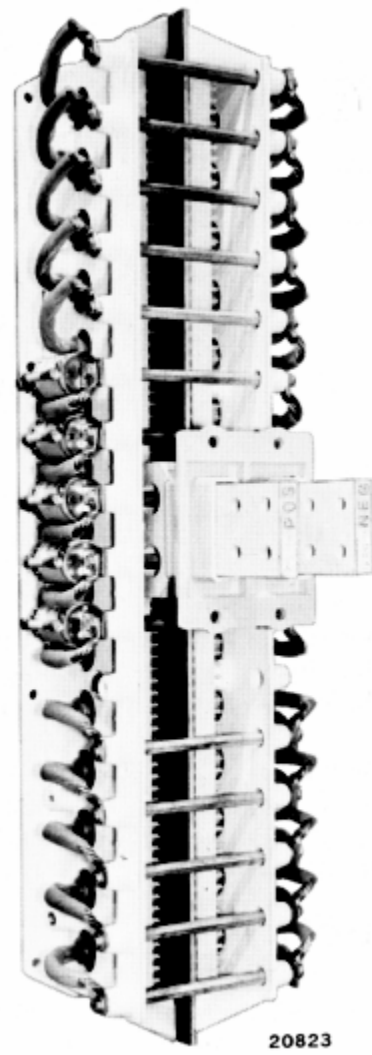


Fig. 2 - Molded Type Rectifier Assembly

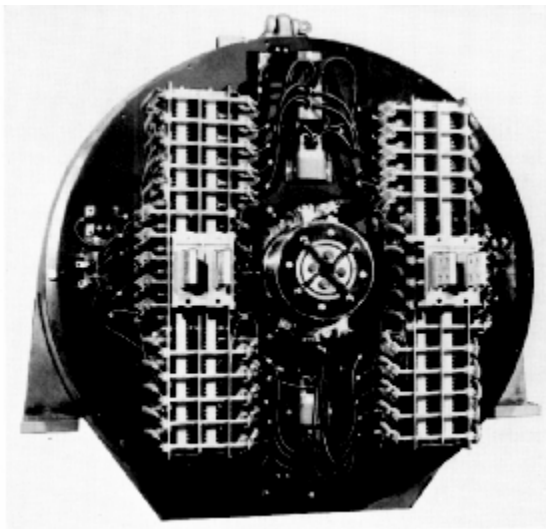


Fig. 3 - Fabricated Type Rectifier Bank Assemblies

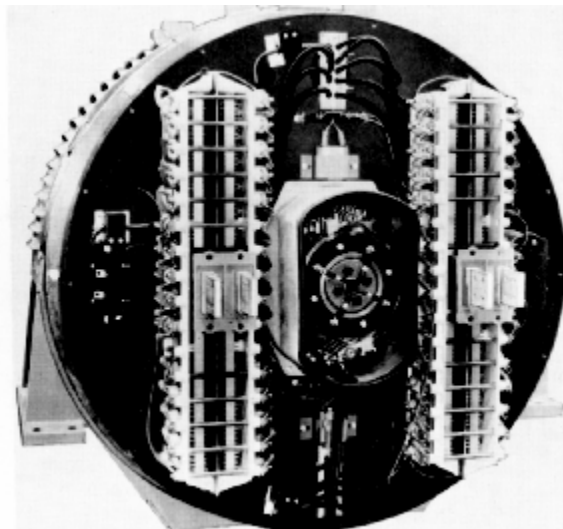


Fig. 4 - Molded Type Rectifier Bank Assemblies

field current transducer provides the necessary signals for control of generator output. The use of field current to provide a signal related to output is possible because the characteristics of the AR10 are such that for much of the generator operating range generator output increases directly as field current increases.

CAUTION: Some AR10 generators may be equipped with current transformers that are not used. The secondary winding of these unused current transformers must be shorted together to prevent high voltage damage to the generator.

DIODE CLASSIFICATION

For service purposes the following classifications of AR 10 diodes are significant.

1. Polarity with respect to the diode base (threaded stud). A color code is used to assist in identification.
2. Type with respect to forward voltage drop. Identification is assisted by color code and by type number impressed into the base.
3. Voltage class in respect to repetitive and non-repetitive peak inverse voltage rating. Identification is assisted by color code.

A table that relates diode service part numbers to other identifying characteristics is provided as Table S 1 in the service data section of this instruction.

DIODE POLARITY

THE DIFFERENCE BETWEEN POSITIVE AND NEGATIVE BASE DIODES

The direction in which conventional electrical current flows through a diode determines its polarity. The graphical arrow symbol, Fig. 5, is oriented to indicate diode polarity.

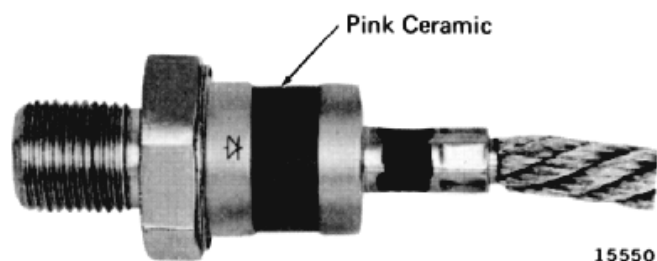


Fig. 5 - Rectifier Polarity Symbol - Negative Base Diode Shown

To provide a permanent method of identification, the ceramic cases of the diodes are permanently colored as follows:

DIODE POLARITY	
Positive Base Diode	White Ceramic
Negative Base Diode	Pink Ceramic

For the diode to conduct, a positive voltage must be applied coincident with the tail of the arrow, and a negative voltage applied coincident with the point of the arrow. If the voltages are reversed, the diode will block, and only a small leakage current will pass through the diode.

Negative base diodes require a positive voltage on the stud, and a negative voltage on the flexible lead in order to conduct.

Positive base diodes require a positive voltage on the flexible lead, and a negative voltage on the stud.

DIODE TYPES

THE DIFFERENCE BETWEEN DIODE TYPES

Because of the high DC current requirements for locomotive tractive power, diodes must be connected in parallel conducting paths. When parallel operation of silicon diodes is undertaken, means must be provided to ensure a reasonable degree of current sharing. Each diode in a parallel group must share the load to prevent overloading of diodes in parallel with it.

Current sharing of AR 10 diodes is accomplished by paralleling only diodes whose forward characteristics (forward voltage drops) are a near match.

At the time of manufacture, diodes are segregated under specific test conditions according to their forward characteristics and are assigned a type number that is permanently impressed in the metal at the flat end of the threaded stud. In addition, a color code band is applied where the flexible lead is crimped to the diode body, Fig. 6.

DIODE TYPES	
Diode Type Number	Body Crimp Color Band
1 *	None
2	Red
3	Black

*Not used on new equipment and not available as replacement part.

NOTE: The Type 1 diode is not used on new equipment and is not available as a replacement part. It may, however, be used in a rebuilt AR10 generator.

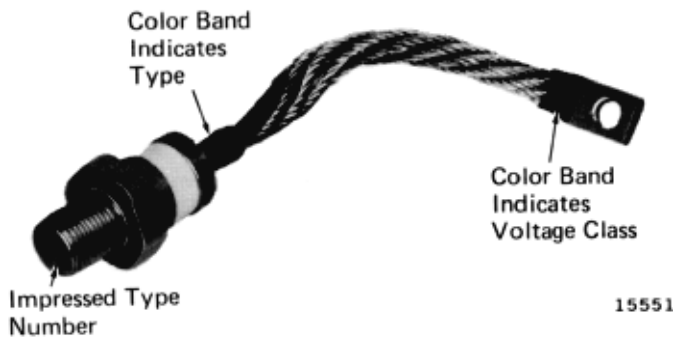


Fig. 6 - Impressed Type Number And Color Bands Indicating Type And Voltage Class

DIODE VOLTAGE CLASSES

Five voltage classes of diodes have been manufactured, but only the 2400 volt diodes are normally used by EMD in the AR 10 generator. The class identification is indicative of repetitive and non-repetitive peak inverse voltage capabilities under specific test conditions. A color band around the barrel at the lug end of the flexible lead indicates the diode voltage class.

DIODE VOLTAGE	
Color Band At Lug Barrel	Voltage Class
None	1600/2000
Green	2000/2400
Brown	2200/2600
Blue	2200/2800
White	2200/3000

The voltage class used in a particular AR10 generator is dependent upon the type of service in which the AR10 is installed and upon specific characteristics of the control system that is used. The table of diode identification, Table S1, identifies diodes by voltage class and service part number.

MANUFACTURER'S QUALIFICATION MARKS

Various phases of diode qualification testing have occurred in the past and will continue to occur in the future. A variety of qualification marks (see Fig. 7) have been placed upon diodes by the manufacturer. For example; small color dots on the diode body, large color spots (not bands) on the diode body or lug, color marks at the edge of the lug, and numbers stamped onto the diode body. These marks are for manufacturer's identification only.

The only significant marks for service purposes are:

1. The color band 360 degrees around the lug barrel at the end of the flexible lead.
2. The color band 360 degrees around the crimp at the flexible lead and diode body.
3. The service part number printed on the cap of the diode body.
4. The color of the ceramic insulator.
5. The diode type number stamped into the flat end of the treaded stud.

ALL OTHER COLOR SPOTS AND STAMPINGS ARE IRRELEVANT FOR SERVICE PURPOSES AND ARE TO BE DISREGARDED COMPLETELY.

PROTECTIVE FUSES

Current limiting fuses, Fig. 8, are provided to isolate shorted diodes. The fuses are a bolted lug type, with the lugs affixed to end blocks. Fast acting silver alloy fusible links attached to the end block are surrounded with silicon sand that acts to absorb arc energy during fault clearing. The body of the fuse is made of reinforced melamine.

A small indicating fuse is affixed to the main fuse body and is connected in parallel with the main fuse elements. When the main elements burn

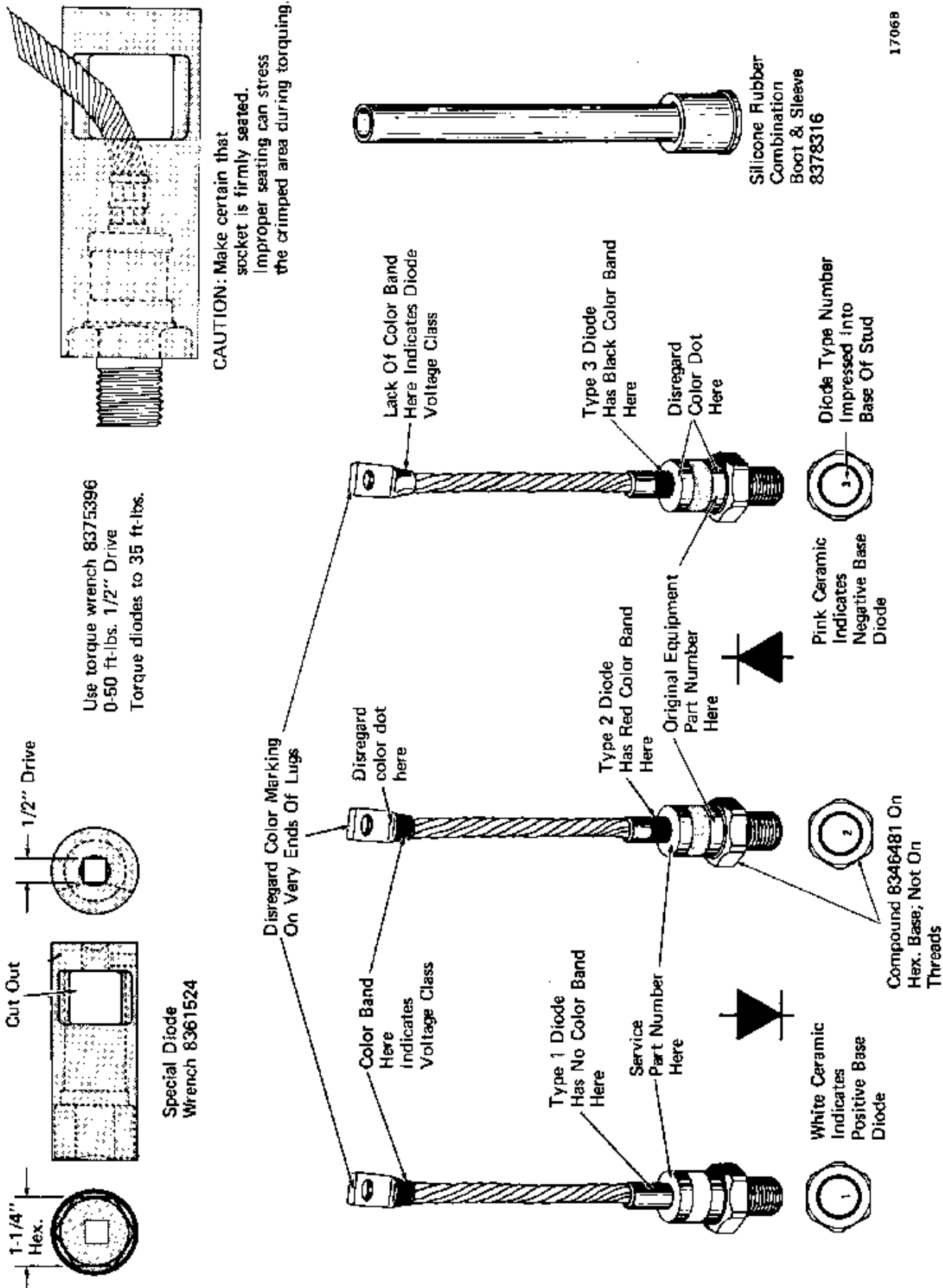


Fig. 7 - Identification Markings Illustrated



Fig. 8 - Current Limiting Fuse

open, the element of the indicator also burns open. A spring in the indicator drives an indicating pin to protrude about 3/16" from the end of the indicator.

Note that the internal-hex screw on one end of the fuse is provided only for insertion of sand by the manufacturer. The screw is staked to prevent its removal. The fusible elements cannot be renewed, and a blown fuse cannot be repaired.

NOTE: Two fuses with different voltage ratings have been manufactured for the AR10. Fuse 8346478 is the basic fuse. However, Fuse 8407729 may be used as a service replacement part.

DIODE MATCHING

Fig. 9 shows the AR 10 rectifier assembly with the air box removed. The illustration shows how diodes and fuses are paralleled in groups of five by use of paralleling bars.

Diodes used in the AR 10 generator must be matched as follows:

1. Polarity

All diodes in any paralleled group of five diodes must be of the same polarity (ceramic cases must be of the same color), and the diodes must be applied to the proper heatsink bus. Negative base (pink) diodes to negative bus, and positive base (white) diodes to positive bus. Bus polarity is stamped into the end of the bus.

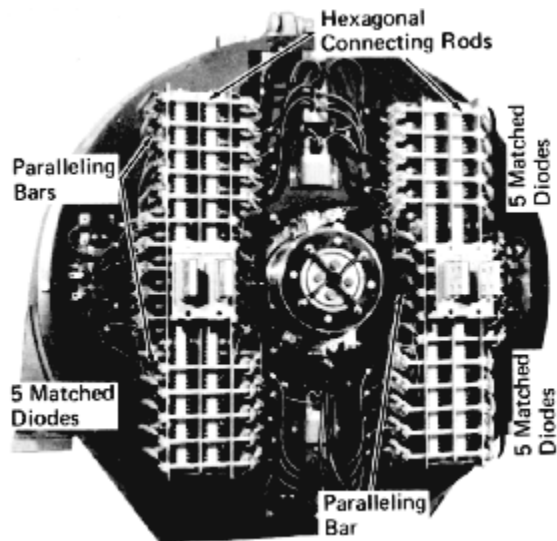


Fig. 9 - Diode Matching Within Groups

2. Type

All diodes in any paralleled group of five diodes should be of the same type (same impressed type number and same type color band at the lower crimp). MIXING OF TYPES WILL CAUSE UNEQUAL LOAD SHARING.

Observe that hexagonal connecting rods do not connect diodes in parallel; therefore, diodes connected by rods do not necessarily match by type.

NOTE: Some AR10 generators are equipped with Type 1 diodes, but only Type 2 and Type 3 diodes are used in new production of the AR10 generator, and only Type 2 and Type 3 diodes may be obtained as replacement parts. If replacement for a Type 1 diode is needed, remove all diodes from the affected paralleled group of five diodes and renew with five Type 2 or Type 3 diodes. Test and retain all good Type 1 diodes for use as replacement parts.

If due to operating conditions mixing of types cannot be avoided, a replacement diode of the next higher type number may be used for a temporary emergency fix. This diode should be replaced with the proper type diode at the earliest opportunity.

3. Voltage Class

Diodes of different voltage classes may be mixed in an AR 10 generator, but all diodes in any AR10 must equal or better the inverse voltage rating (voltage class) required for the particular AR10 application. For example, diodes of the 2000/2400 voltage class (green color band at upper lug barrel) may be mixed with diodes of the 1600/2000 voltage class (no color band at the upper lug) in the AR 10A generator, but diodes of the 1600/2000 voltage class must not be used in the AR 10B generator, because the AR 10B requires diodes of a higher voltage class.

A table that relates AR10 model numbers to diode voltage class requirement and other pertinent data is provided as Table S2 in the service data section of the maintenance instruction.

DIODE INSPECTION AND REPLACEMENT

Figs. 10 and 11 illustrate AR 10 airbox inspection and provide information regarding diode and fuse testing and replacement. A simplified pictorial wiring diagram of the AR10 stator and rectifier assemblies is provided in Fig. 12.

AR10 RECTIFIER INSPECTION

OPERATION IS PERMISSIBLE IF NO MORE THAN ONE BLOWN FUSE IS SEEN AT EACH INSPECTION PORT.

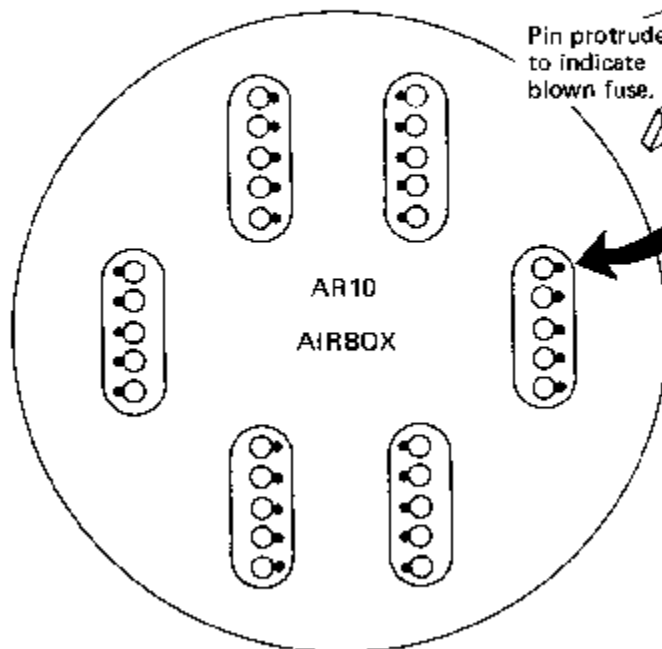
(This permits a maximum of 6 blown fuses.)

DO NOT OPERATE THE LOCOMOTIVE IF MORE THAN ONE BLOWN FUSE IS SEEN AT ANY ONE INSPECTION PORT.

(A total of 2 blown fuses may require shutdown.)

Pin protrudes to indicate blown fuse.

Fuse 8346478



Replace blown fuses and shorted diodes as soon as practicable.

Apply all panels and covers securely after inspection.

Inspect for blown fuses and shorted diodes whenever ground relay action is reported.

Inspect at intervals indicated in the Scheduled Maintenance Program.

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Fig. 10 - AR 10 Rectifier Inspection

DIODE INSPECTION AND REPLACEMENT

1. Indicating pin protrudes.
2. Remove nut and unfasten diode lead. Check fuse continuity.

NOTE: If multiple failures have occurred in a single group of 5 diodes, or if repeated failures have been observed in a single group of 5 diodes, isolate and check all diodes in the group.

3. Place continuity tester across negative bus and connecting rod, then switch the tester leads. This checks one of the diodes protected by the fuse.

If diode is good, the meter registers 10 to 20 ohms in one direction and above 30,000 ohms when leads are reversed.

4. Place continuity tester across positive bus and diode lead, then switch the tester leads. This checks the other diode protected by the fuse.
5. Replace blown fuse with a good fuse.
6. Remove faulty diodes, using special diode wrench 8361524.
7. Clean the mounting surface of the heat sink bus.
8. Replace shorted diodes with good diodes of identical type, polarity, and voltage class (or higher voltage class). Apply compound 8346481 to the base of the diode hex in sufficient quantity to cover the surface. Do not apply on threads.
9. With special diode wrench and 0-50 ft-lb torque wrench 8375396, torque diodes to 35 ft-lbs. Make certain that the wrench is properly seated when torquing.
10. Replace and securely fasten all airbox panels and inspection covers.

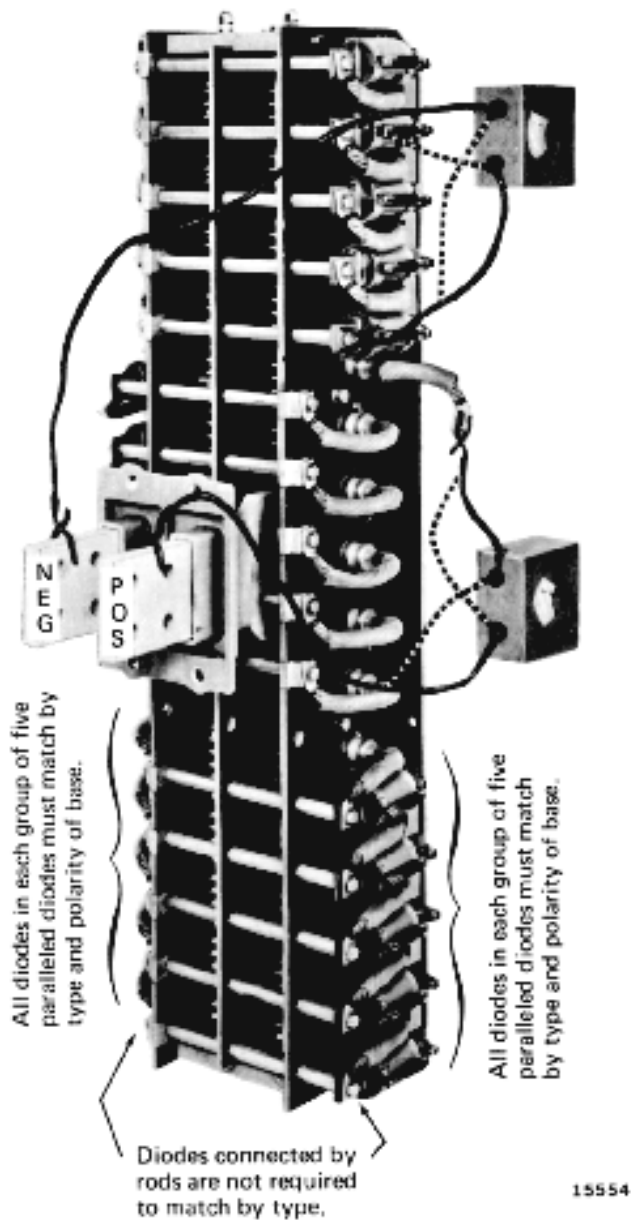
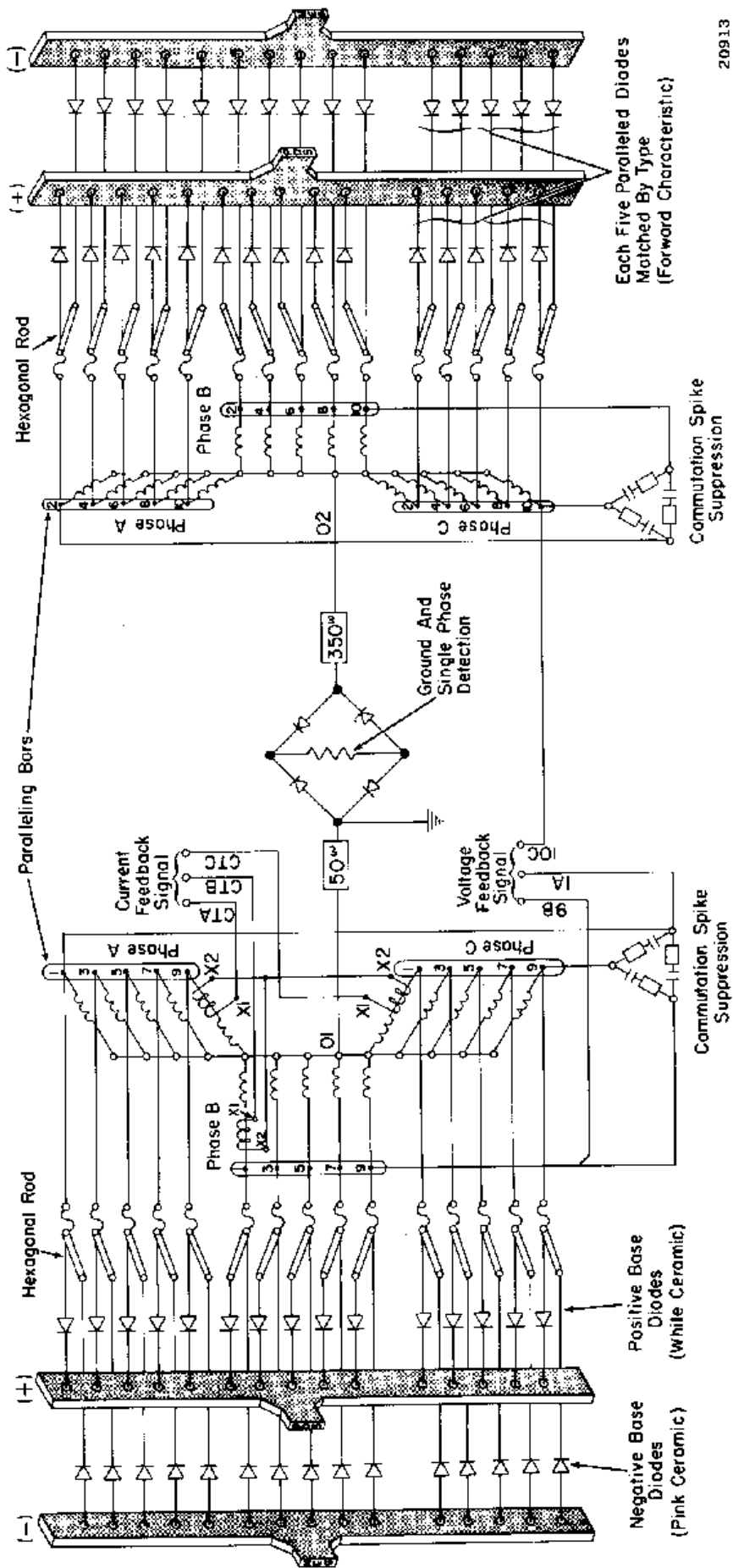


Fig. 11 - Diode Inspection And Replacement



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Fig. 12 - Simplified AR10 Pictorial Wiring Diagram

AR10 COMMUTATION TRANSIENT VOLTAGE SUPPRESSION

INTRODUCTION

After commutation, voltage transients are produced. The action of diodes switching from a conducting to a blocking state in the AR10 generator is called commutation. During commutation high reverse current flows in the diodes for a few microseconds, after which time the value of reverse current flow in the diode suddenly drops to almost zero. The rate at which current flow changes from a high value to almost zero, multiplied by circuit inductance determines the magnitude of the transient voltage spike. If this transient voltage exceeds the reverse rating of the diode, the diode will immediately fail.

The AR10 generator is provided with a system for capacitive storage of energy from circuit inductance during commutation. The system is

called the commutation transient voltage suppression system.

SUPPRESSION SYSTEM DESCRIPTION

Two different suppression systems have been applied to protect AR10 rectifiers from commutation transients. Both provide equal reliability and protection when properly connected.

The first of these systems, Fig. 13, uses a 4 microfarad capacitor and a 10 ohm resistor connected in series and parallel with each group of five diodes. Thus, since the AR 10 DC buses are paralleled, there are 12 series resistor capacitor circuits connected in parallel with the AR10 diodes.

The second system, Fig. 14, for suppression of commutation transients uses a 2 microfarad capacitor and a 5 ohm resistor connected in series. These in turn are connected between the "A," "B," and "C" phase paralleling bars on both the left and right banks of the generator.

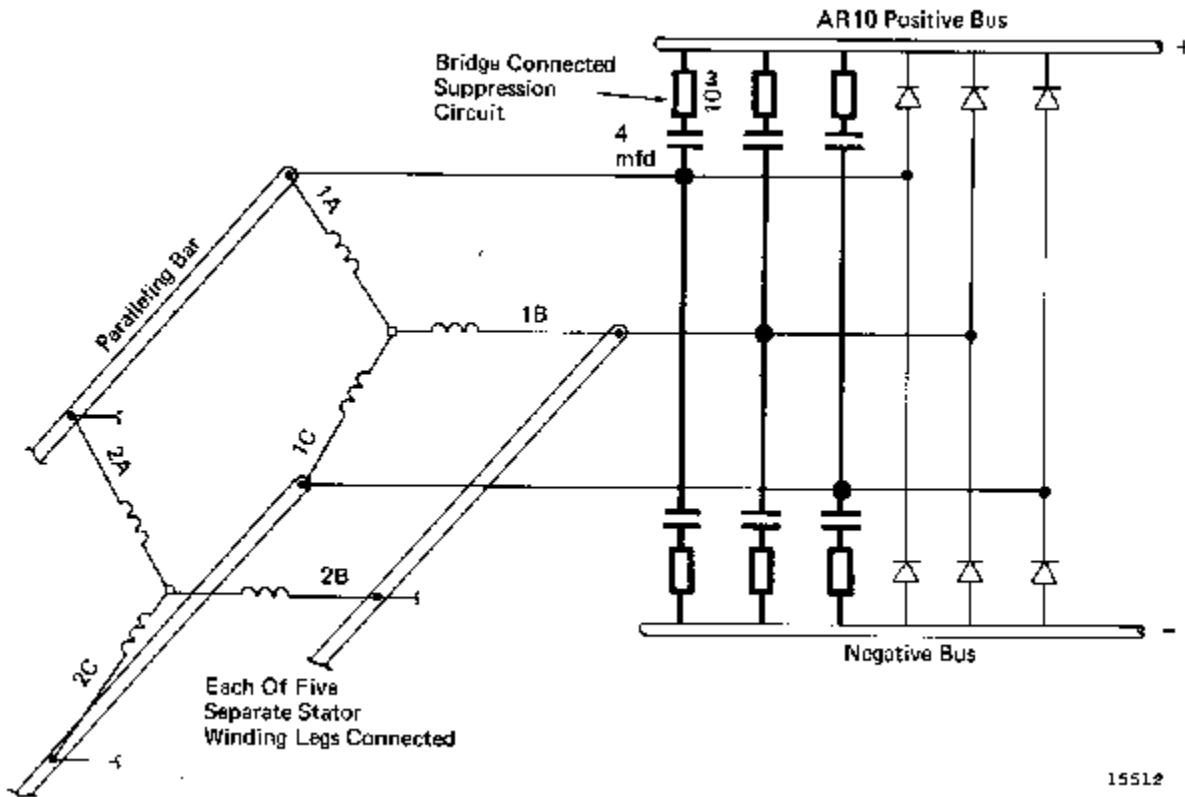
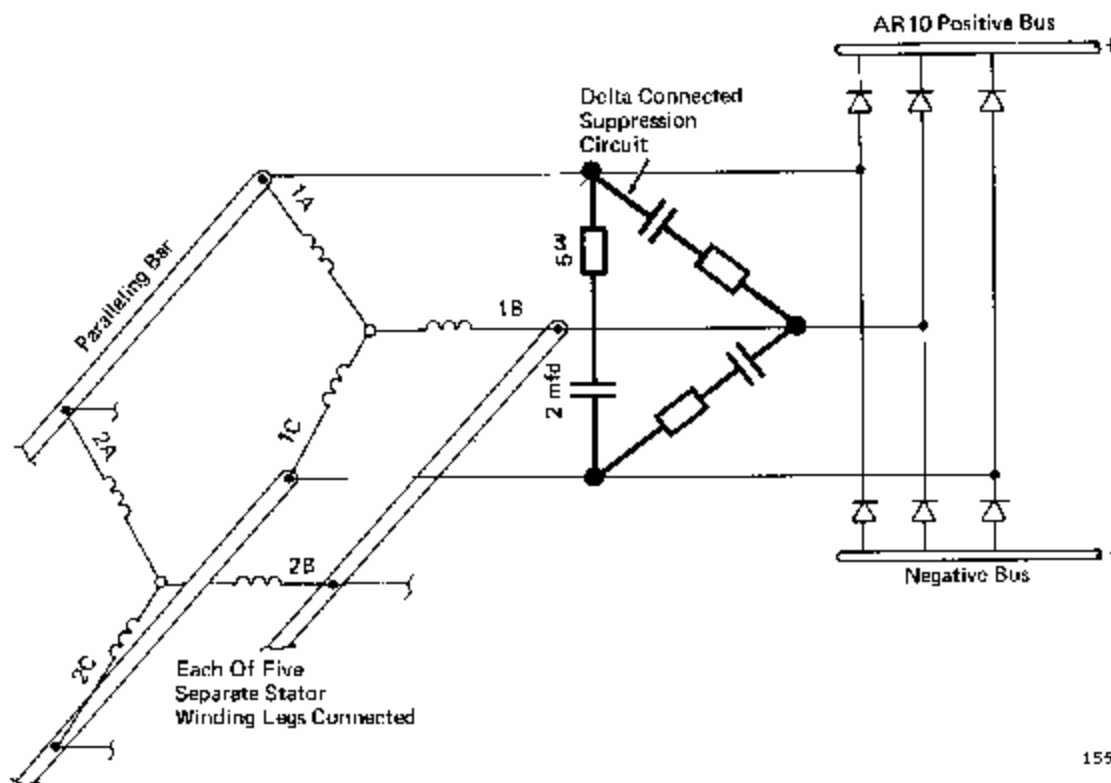


Fig. 13 - Bridge Connected Suppression Circuit - Simplified Diagram

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Fig. 14 - Delta Connected Suppression Circuit - Simplified Diagram

INSPECTION OF THE SUPPRESSION SYSTEM

An inspection of the commutation transient voltage suppression system should be made every time a faulty or failed diode is detected and replaced. The required inspection is basically visual. The following checks should be made.

1. Check that all connections are tight and are electrically correct. See Figs. 15 through 18 for wiring diagrams.
2. Examine all resistors for evidence of overheating and open turns.
3. Examine all capacitors for oil leaks or deformation of the container. (The container top may be badly pushed out.)

TEST AND CORRECTIVE MEASURES

LOOSE OR IMPROPER CONNECTIONS

Tighten any loose connections in accordance with the applicable wiring diagram.

DAMAGED RESISTORS

Any resistors that appear to be burned or damaged should be disconnected and continuity checked. Faulty resistors must be immediately replaced with qualified resistors.

DEFECTIVE CAPACITORS

If a capacitor is suspected faulty, it should be disconnected and checked in the following manner.

1. Checks with a 500 or 1000 volt megger.
 - a. Short circuit the capacitor terminals and connect the positive lead from the megger to the terminals. Connect the megger negative lead to the capacitor case, and turn the megger. The reading should be 25 megohms or more. Disconnect the megger and shorting jumper.
 - b. Connect one megger lead to one capacitor terminal and connect the other megger lead to the other capacitor terminal, and

turn the handle. If the capacitor is good, there will be a definite meter needle deflection toward zero (indicating capacitor charging current) followed by a drift toward infinity as the capacitor charges. Failure of the meter needle to deflect toward zero is an indication that the capacitor is open internally.

If the capacitor is shorted, the megger will read zero when the handle is turned. If the capacitor is open, it will read infinity immediately upon turning the handle, and the reading will drop to zero when the turning stops.

CAUTION: Carefully discharge the capacitor after the check by using an insulated handled screwdriver to short across the capacitor terminals.

2. If only a 500 volt megger is available, and megger checks indicate a good capacitor but the condition of the capacitor is still suspect (burn spots appear on resistors associated with the capacitor), use a 64 V DC input, 1200 V DC output MG set as a high potential tester to induce possible flashover within the capacitor.
 - a. Connect the positive output lead from the MG set to one terminal of the capacitor. Connect the negative output lead from the MG set to the other capacitor terminal. Connect a 0-1500 V DC meter to read MG set output voltage. Connect MG set input to a 64 or 74 V DC source.
 - b. Advance MG set output voltage. The meter needle will advance as the MG set handle is turned. If a flashover is induced in the capacitor, the meter will dip toward zero, indicating a bad capacitor. Immediately reduce voltage to zero, then turn off the MG set.

If the capacitor is good, voltage will remain at the high output value from the MG set. Reduce MG set voltage to zero, then turn off the set.

CAUTION: Carefully discharge the capacitor after the check by using an insulated handled screwdriver to short across the capacitor terminals.

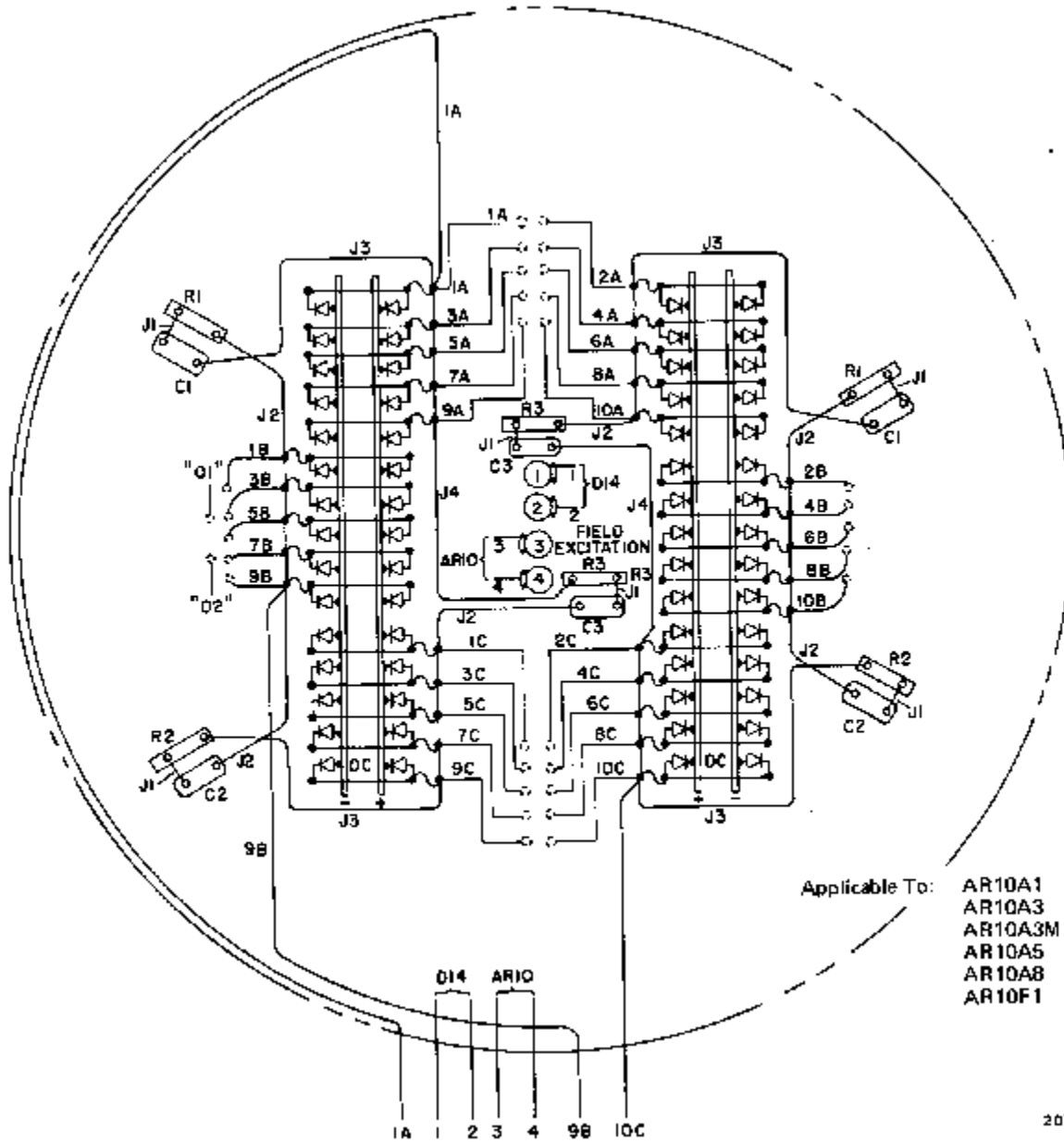
MODELS OF THE AR10 GENERATOR

Several characteristics determine the particular model number given to an AR10 generator.

1. The type of suppression circuit employed, and the rating of suppression components.
2. The use or lack of current transformers.
3. The voltage class of the diodes employed.
4. Restriction as to diode type used. (Special order only.)
5. Configuration of air box.
6. Type of coupling disc employed.
7. Application of wedges at the rotor coils.

A table that relates AR10 model numbers to various components and characteristics is provided as Table S2 in the service data section of this maintenance instruction.

VIEW FACING SLIP RING END OF ALTERNATOR



UNCONNECTED CABLE ENDS OF 1A, 9B & 10C ARE TO BE INSULATED & TERMINATED INSIDE OF AIR BOX

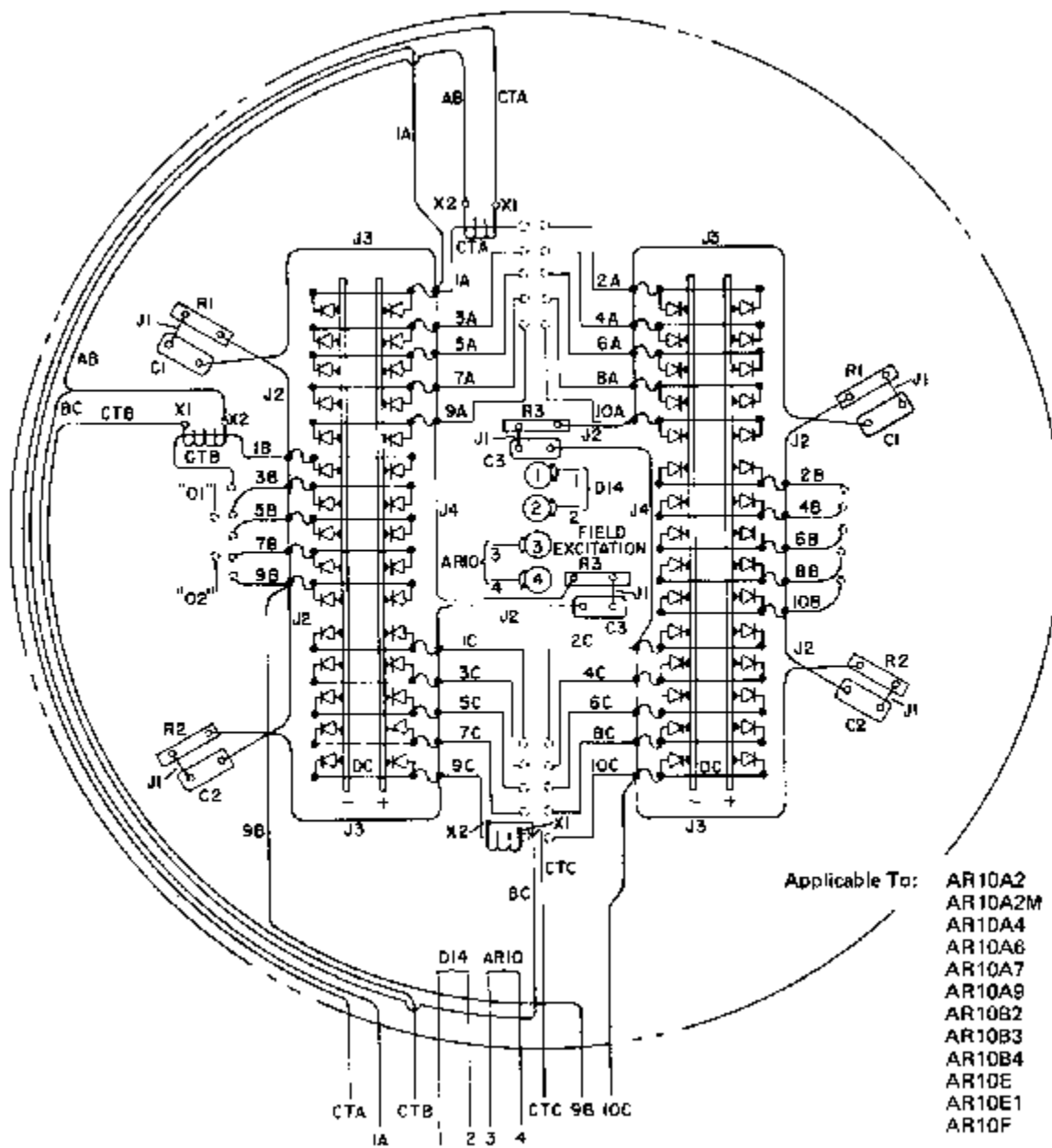
SUPPRESSION CIRCUIT COMPONENTS

8380921 CAPACITOR - C₁, C₂, OR C₃

8380922 RESISTOR - R₁, R₂, OR R₃

Fig. 16 - Rectifier Banks And Suppression Circuits, Simplified Diagram

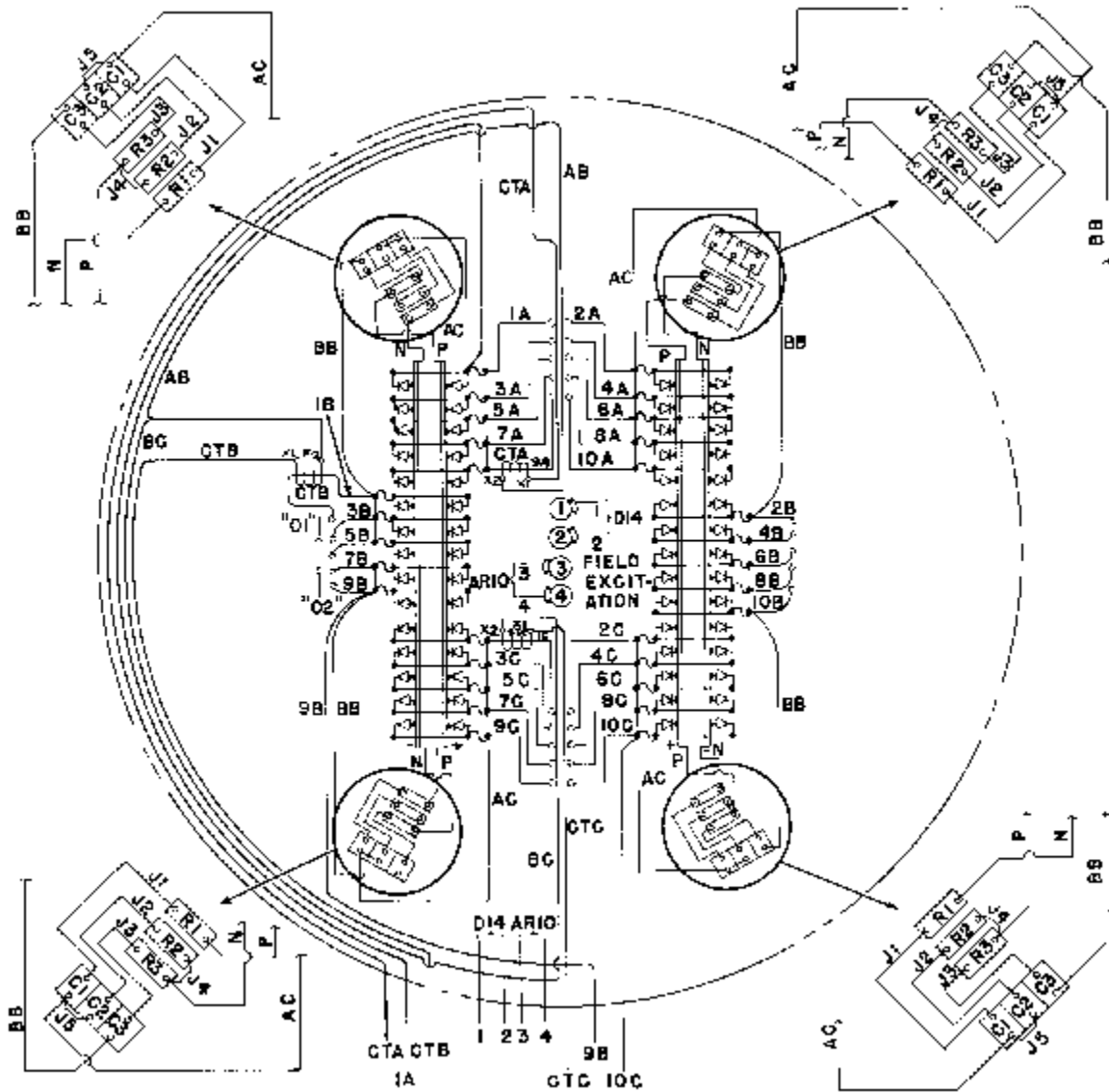
VIEW FACING SLIP RING END OF ALTERNATOR



NOTE: SAME SUPPRESSION CIRCUIT COMPONENTS AS SHOWN IN FIGURE 16

Fig. 17 - Rectifier Banks And Suppression Circuits, Simplified Diagram

VIEW FACING SLIP RING END OF ALTERNATOR



NOTE: SAME SUPPRESSION CIRCUIT COMPONENTS AS AR10A SHOWN IN FIGURE 15

Fig. 18 - AR10B Rectifier Banks And Suppression Circuits, Simplified Diagram

SERVICE DATA

TABLE S1
TABLE OF DIODE IDENTIFICATION

SERVICE	ORIGINAL EQUIPMENT	VOLTAGE CLASS	POLARITY OF BASE	CERAMIC COLOR	DIODE TYPE	COLOR BAND AT LOWER CRIMP	COLOR BAND AT UPPER LUG	USAGE
*8365633	8346479-1	1600/2000	Positive	White	1	None	None	
8365632	8346479-2	1600/2000	Positive	White	2	Red	None	
8379519	8346479-3	1600/2000	Positive	White	3	Black	None	
*8365631	8346480-1	1600/2000	Negative	Pink	1	None	None	
8365630	8346480-2	1600/2000	Negative	Pink	2	Red	None	
8379517	8346480-3	1600/2000	Negative	Pink	3	Black	None	
*8379518	8364554-1	2000/2400	Positive	White	1	None	Green	
8368466	8364554-2	2000/2400	Positive	White	2	Red	Green	
8368467	8364554-3	2000/2400	Positive	White	3	Black	Green	
*8379520	8364555-1	2000/2400	Negative	Pink	1	None	Green	
8368468	8364555-2	2000/2400	Negative	Pink	2	Red	Green	
8368469	8364555-3	2000/2400	Negative	Pink	3	Black	Green	
*8447657	8427674-2	2200/2600	Positive	White	2	Red	Brown	
*8427675	8427674-3	2200/2600	Positive	White	3	Black	Brown	
*8427676	8427674-4	2200/2600	Positive	White	4	Yellow	Brown	
*8447656	8427677-2	2200/2600	Negative	Pink	2	Red	Brown	
*8427678	8427677-3	2200/2600	Negative	Pink	3	Black	Brown	
**8427679	8427677-4	2200/2600	Negative	Pink	4	Yellow	Brown	
**8447655	8418231-2	2200/2800	Positive	White	2	Red	Blue	Special Use Only
**8418565	8418231-3	2200/2800	Positive	White	3	Black	Blue	Special Use Only
**8418564	8418231-4	2200/2800	Positive	White	4	Yellow	Blue	Special Use Only
**8447654	8418232-2	2200/2800	Negative	Pink	2	Red	Blue	Special Use Only
**8418563	8418232-3	2200/2800	Negative	Pink	3	Black	Blue	Special Use Only
**8418562	8418232-4	2200/2800	Negative	Pink	4	Yellow	Blue	Special Use Only
**8407850	8407727-3	2200/3000	Positive	White	3	Black	White	Special Use Only
**8407849	8407727-4	2200/3000	Positive	White	4	Yellow	White	Special Use Only
**8407852	8407728-3	2200/3000	Negative	Pink	3	Black	White	Special Use Only
**8407851	8407728-4	2200/3000	Negative	Pink	4	Yellow	White	Special Use Only

*Not used as new equipment and not available as replacement part.
May be used on rebuilt generators.

**Restricted availability.

TABLE S2-AR10 MODEL BREAKDOWN (For Reference Only)

Generator		Current Transformer		Diodes			Rectifier Part No.		Usage Guide
Model	Part No.	Yes	No	Voltage	Type	Neg. Part No. Pos.	Fabricated Type	Molded Type	For Reference Only
AR10A	8356380		X	2000	2 or 3	<u>8346480</u> <u>8346479</u>	8357712	9084996	GP40, SD40, SDP40
AR10A1	8391418		X	2000	2 or 3	<u>8346480</u> <u>8346479</u>	8357712	9084996	SD40, SDP40
AR I 0A2	8391244	X		2000	2 or 3	<u>8346480</u> <u>8346479</u>	8357712	9084996	GP40, GP40P
AR10A2M	8448421	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	GP40
AR 10A3	8416708		X	2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD40
AR10A3M	8449397		X	2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD40
AR10A4	8431191	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9085995	GP40, GP39
AR10A5	8441144		X	2400	3	<u>8368469-3</u> <u>8368467-3</u>	8448671	9084997	GT26, GT26CW
AR10A6	8447750	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	GP40, GP40-2, GP39-2
AR10A7	8447751	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD40, SD40-2, SDP40F
AR 10A8	8448660		X	2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD40
AR 10A9	8493245	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8493244	9084998	F40C
AR10B	8364551	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD45, SDP45, F45 FP45
AR10132	8391417	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD45, SDP45, F45 FP45
AR10133	8432870	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD45, SDP45, F45
AR10134	8447752	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	SD45, SD45-2, F45
AR10E	8434954	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	GP38AC
AR10E1	8447753	X		2400	2 or 3	<u>8364555</u> <u>8364554</u>	8364553	9084995	GP38AC, GP38-2. SD38AC SD38-2
AR 10F	8449914	X		2400	3	<u>8368469-3</u> <u>8368467-3</u>	8448671	9084997	GT26M, GT26CU-2, GT26MC-Hihh Feet
ARIOFI	8463445		X	2400	3	<u>8368469-3</u> <u>8368467-3</u>	8448671	9084997	G22, GT22CU, GT22CW, GT26CW-2- High Feet

NOTE: All generators except AR I 0A and AR I 0B use delta connected capacitors and resistors for transient suppression.

SERVICE DATA(CONT'D)

Weight Of Rectifier Bank Assembly	100 lbs
Tools And Meters	
Special Diode Socket Wrench	8361524
Torque Wrench, 0-50 Ft-Lbs - 1/2" Drive	8375396
Compound - Joint	8346481
(Apply to diode hex contact area prior to mounting. Do not apply to threads.)	
Multi-meter	8276478
500 V DC Megohmmeter (Megger)	8174880
Dynamotor (MG Set) 1200 V DC Output -- 64 V DC Input	8233558

CLEANING OF AR10 RECTIFIER ASSEMBLIES

The following procedure is recommended for cleaning the AR10 rectifier assemblies. The cleaning should be performed at the intervals stated in the scheduled maintenance program.

1. Remove the heat sink assemblies from the generator.
2. Remove all fuses from the assemblies. Do not remove the diodes, and do not remove the sleeves from the diodes.

WARNING: Water or cleaning solution allowed to contaminate the arc quenching sand inside the fuse body can cause the fuse to explode when it is required to isolate a shorted diode.

3. In a suitable tank, mix "Turco Steam Fas" cleaner in a ratio of 3 ounces per gallon of water. Maintain solution temperature at about 160 degrees F. Do not allow the solution to boil.
4. Place the suction pipe from a steam gun into the solution, and open valves to obtain a 160 degree F mix with steam at the gun discharge nozzle.

CAUTION: Do not use live steam alone to clean the assemblies, and do not soak the assemblies in a caustic solution. If diodes are removed from the heat sink, the contact surfaces of the diodes and heat sink assemblies must not be cleaned with an abrasive material or wire brush. Such cleaning will destroy the finish and reduce heat rejection capability.

5. Clean all parts of the heat sink assembly, keeping the gun nozzle 4 to 6 inches from the work.
6. Thoroughly rinse the assembly with a low pressure stream of clean water to remove all residue.
7. Blow off remaining clear water with dry air.
8. Test all diodes and fuses with an ohmmeter.
9. Reinstall fuses and reinstall the diode assembly after the generator airbox and end plate have been cleaned.