CATERPILLAR®

SENR4794-06
January 2002

Systems Operation

Connection Diagrams: SR4 and SR4B Generators, Voltage Regulators, Options

Important Safety Information

Most accidents that involve product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.

Do not operate or perform any lubrication, maintenance or repair on this product, until you have read and understood the operation, lubrication, maintenance and repair information.

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

The hazards are identified by the “Safety Alert Symbol” and followed by a “Signal Word” such as “DANGER”, “WARNING” or “CAUTION”. The Safety Alert “WARNING” label is shown below.

⚠ WARNING

The meaning of this safety alert symbol is as follows:

Attention! Become Alert! Your Safety is Involved.

The message that appears under the warning explains the hazard and can be either written or pictorially presented.

Operations that may cause product damage are identified by “NOTICE” labels on the product and in this publication.

Caterpillar cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are, therefore, not all inclusive. If a tool, procedure, work method or operating technique that is not specifically recommended by Caterpillar is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the product will not be damaged or be made unsafe by the operation, lubrication, maintenance or repair procedures that you choose.

The information, specifications, and illustrations in this publication are on the basis of information that was available at the time that the publication was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service that is given to the product. Obtain the complete and most current information before you start any job. Caterpillar dealers have the most current information available.

⚠ WARNING

When replacement parts are required for this product Caterpillar recommends using Caterpillar replacement parts or parts with equivalent specifications including, but not limited to, physical dimensions, type, strength and material.

Failure to heed this warning can lead to premature failures, product damage, personal injury or death.

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Systems Operation Section

SR4 and SR4B Generators for All Engines Except SR4B for 3500 Engines

i01315422

General Information (All Except SR4B for 3500 Engines)

SMCS Code: 4450

Introduction

The diagrams that follow apply to the SR4 Generators and the SR4B Generators (except for the SR4B used with 3500 Engines).

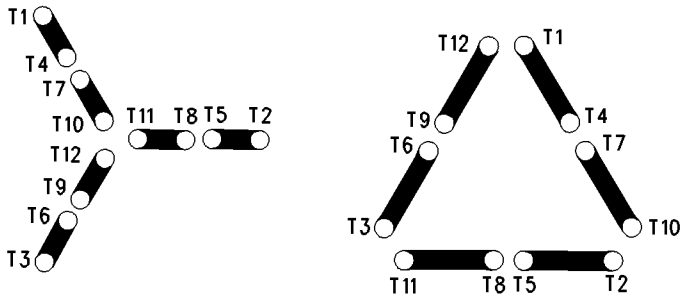
Note: Diagrams for the SR4B used with 3500 Engines appear later in this manual.

i01318051

Main Stator and Voltage Sensing Lead Connections (All Except SR4B for 3500 Engines)

SMCS Code: 4453

12 Lead, Wye and Delta Connection

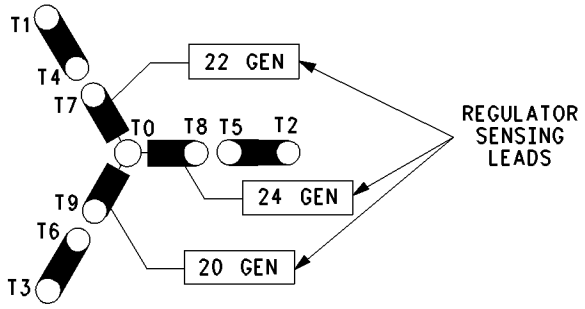


WYE CONNECTION								REGULATOR SENSING		
VOLTAGE	L1 U	L2 V	L3 W	N	TIE TOGETHER			20	22	24
LOW	(T1,T7)	(T2,T8)	(T3,T9)	(T4,T5,T6 T10,T11,T12)				T9	T7	T8
HIGH	T1	T2	T3	(T10,T11,T12)	(T4,T7)	(T5,T8)	(T6,T9)	T9	T7	T8

DELTA CONNECTION						REGULATOR SENSING		
L1 U	L2 V	L3 W	TIE TOGETHER			20	22	24
(T1,T12)	(T2,T10)	(T3,T11)	(T4,T7)	(T5,T8)	(T6,T9)	T1	T2	T3

Illustration 1 g00700302

10 Lead Wye Connection

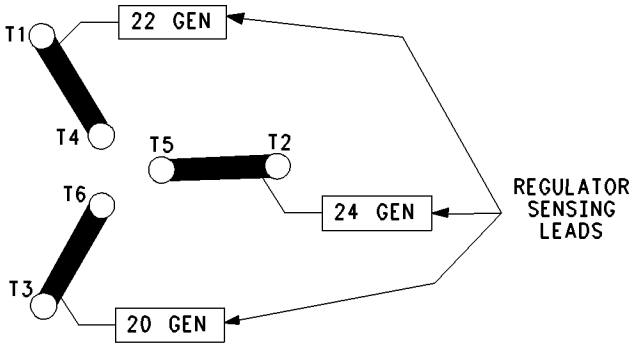


WYE CONNECTION

VOLTAGE	L1 U	L2 V	L3 W	N	TIE TOETHER
LOW	(T1,T7)	(T2,T8)	(T3,T9)	(T4,T5,T6,T0)	
HIGH	T1	T2	T3	T0	(T4,T7) (T5,T8) (T6,T9)

Illustration 2 g00700304

6 Lead Wye Connection



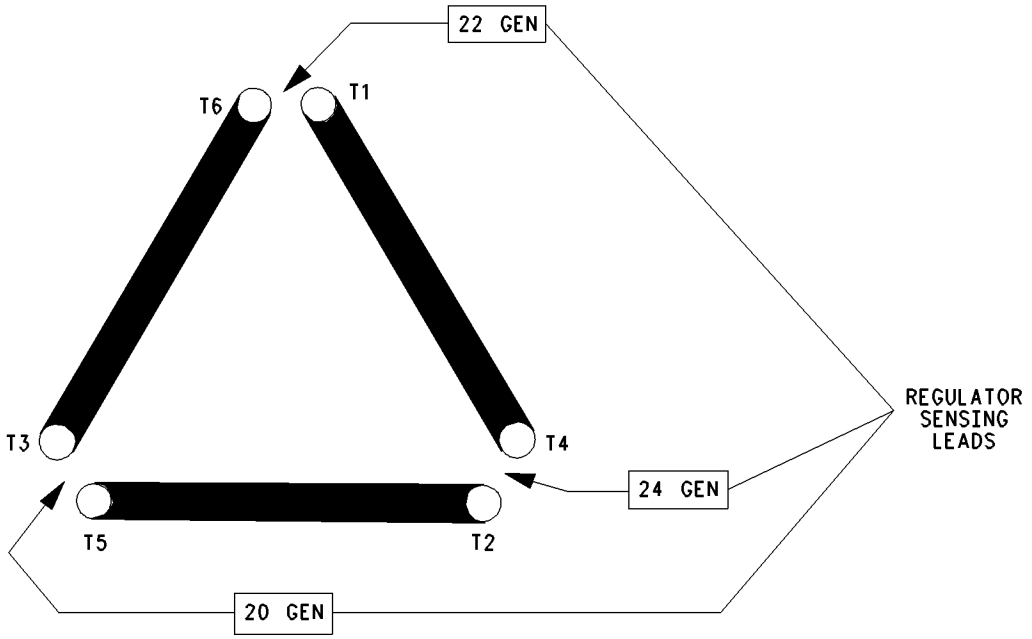
NOTE:
REGULATOR SENSING LEADS MAY NOT BE INSTALLED ON MEDIUM VOLTAGE GENERATORS

WYE CONNECTION

L1 U	L2 V	L3 W	N
T1	T2	T3	(T4,T5,T6)

Illustration 3 g00700317

6 Lead Delta Connection

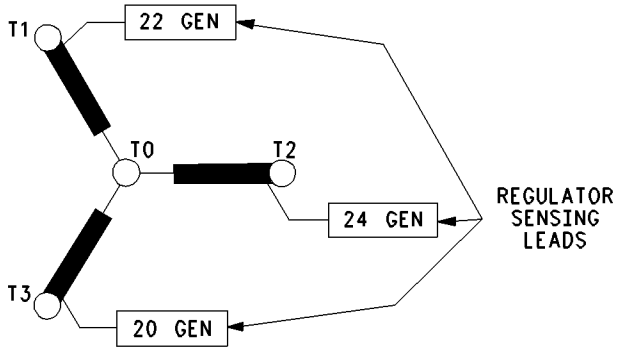


DELTA CONNECTION			REGULATOR SENSING		
L1 U	L2 V	L3 W	20	22	24
(T1,T6)	(T2,T4)	(T3,T5)	T3	T1	T2

NOTE:
REGULATOR SENSING LEADS MAY NOT BE INSTALLED ON MEDIUM VOLTAGE GENERATORS

Illustration 4 g00700323

4 Lead Wye Connection



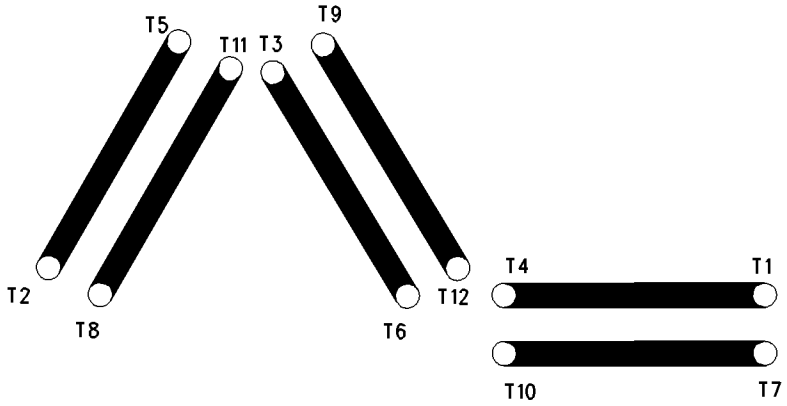
NOTE:
REGULATOR SENSING LEADS MAY NOT BE INSTALLED ON MEDIUM VOLTAGE GENERATORS

WYE CONNECTION

L1 U	L2 V	L3 W	N
T1	T2	T3	T0

Illustration 5 g00700333

12 Lead, Single Phase Connection



GENERATOR CONNECTION				REG SENSE LEADS	
L1 U	L2 V	N W	CONNECT TOGETHER	20	24
(T2,T8)	(T1,T7)	(T4,T6,T10,T12)	(T3,T5,T9,T11)	T2	T1

NOTE: FOR PARRALLEL OPERATION, T8 LEAD GOES THROUGH WINDOW OF DROOP TRANSFORMER

WITH VR-3 VOLTAGE REGULATOR, CONNECT JUMPER WIRE BETWEEN VOLTAGE REGULATOR TERMINALS 20 AND 28.

WITH VR-4 VOLTAGE REGULATOR, JUMPER WIRE IS NOT REQUIRED.

Illustration 6 g00700337

i01330192

Main Revolving Field Connections (All Except SR4B for 3500 Engines)

SMCS Code: 4457

Diode Block

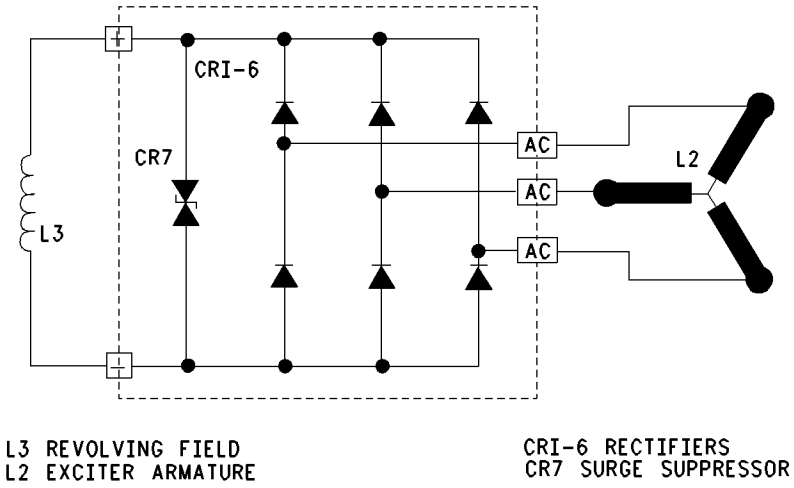


Illustration 7 g00700353

Diode Block and Surge Suppressor

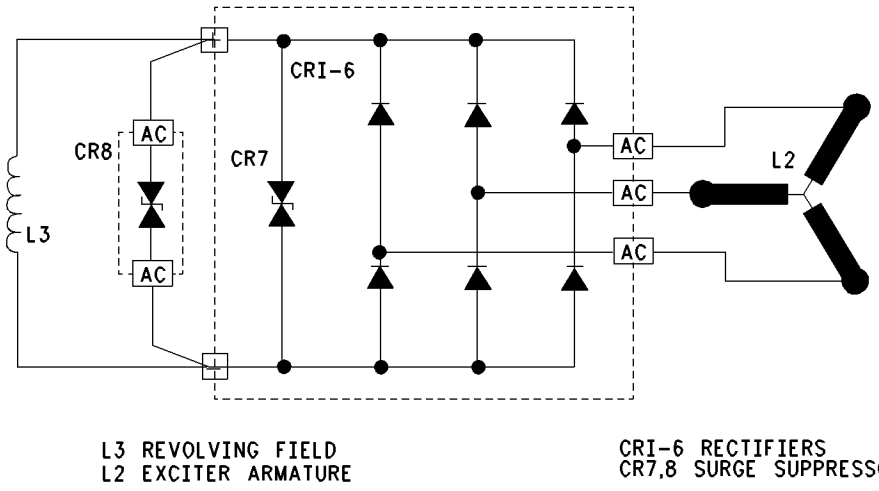
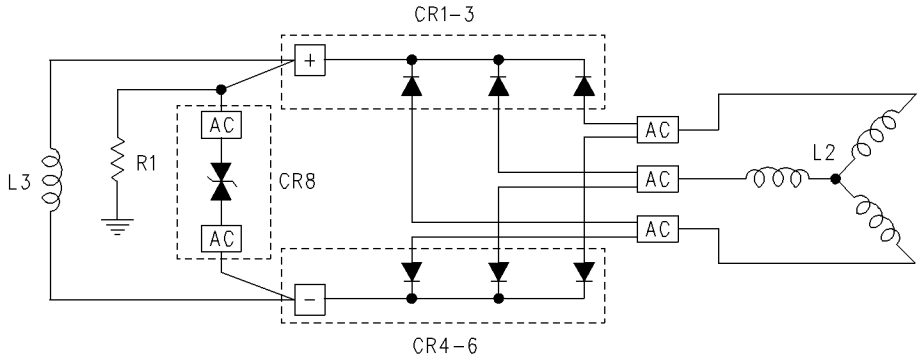


Illustration 8 g00703882

Two Diode Blocks and Surge Suppressor

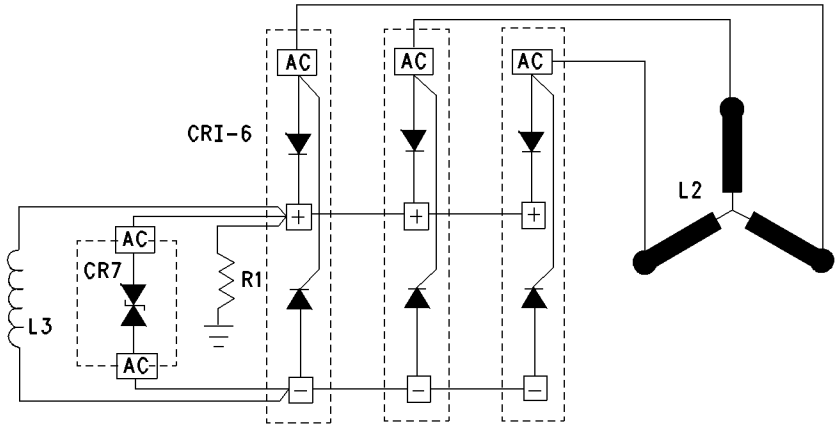


L2 EXITER ARMATURE
L3 REVOLVING FIELD
R1 STATIC DISCHARGE RESISTOR

CR1-6 RECTIFIERS
CR8 SURGE SUPPRESSOR

Illustration 9 g00695807

Three Diode Blocks and Surge Suppressor



L3 REVOLVING FIELD
L2 EXCITER ARMATURE

CRI-6 RECTIFIERS
CR7 SURGE SUPPRESSOR
R1 STATIC DISCHARGE RESISTOR

Illustration 10 g00700361

Six Diodes and Two Surge Suppressors

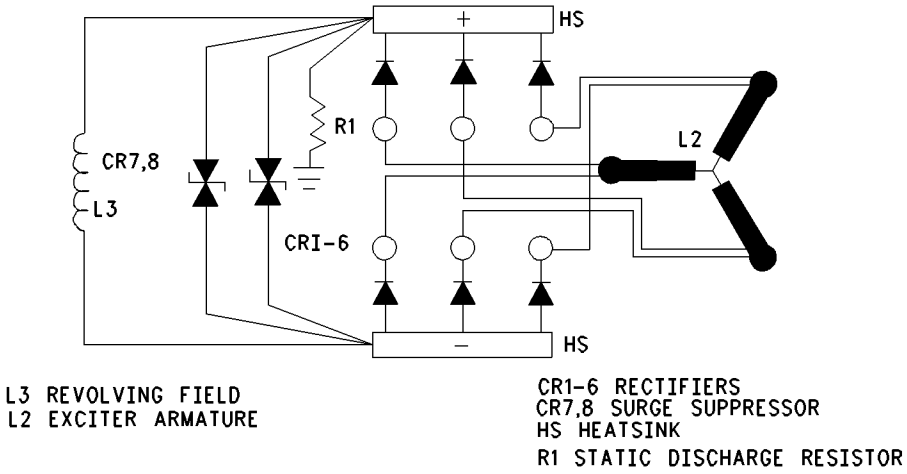


Illustration 11 g00703892

i01330268

Selection Guide for Voltage Regulator (All Except SR4B for 3500 Engines)

SMCS Code: 4467

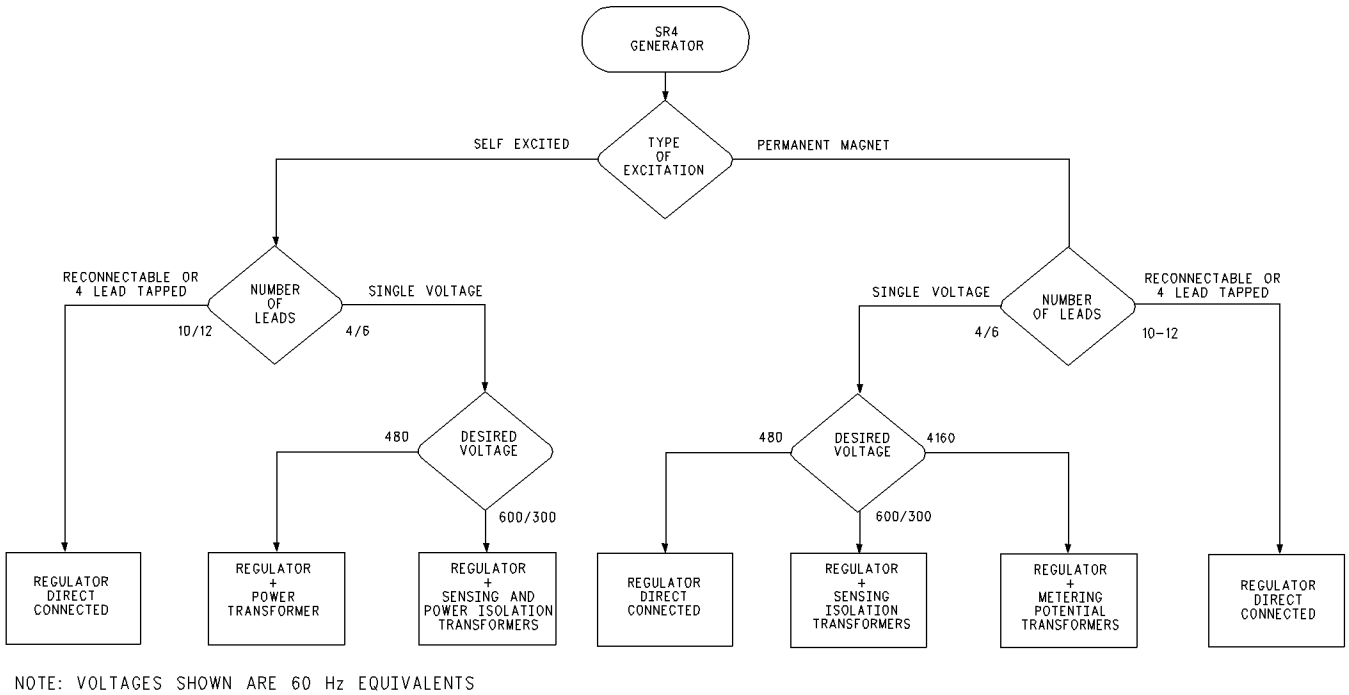


Illustration 12 g00703951

i01330211

VR3 Voltage Regulator Connections (All Except SR4B for 3500 Engines)

SMCS Code: 4467

Self Excited with Direct Connection to Generator

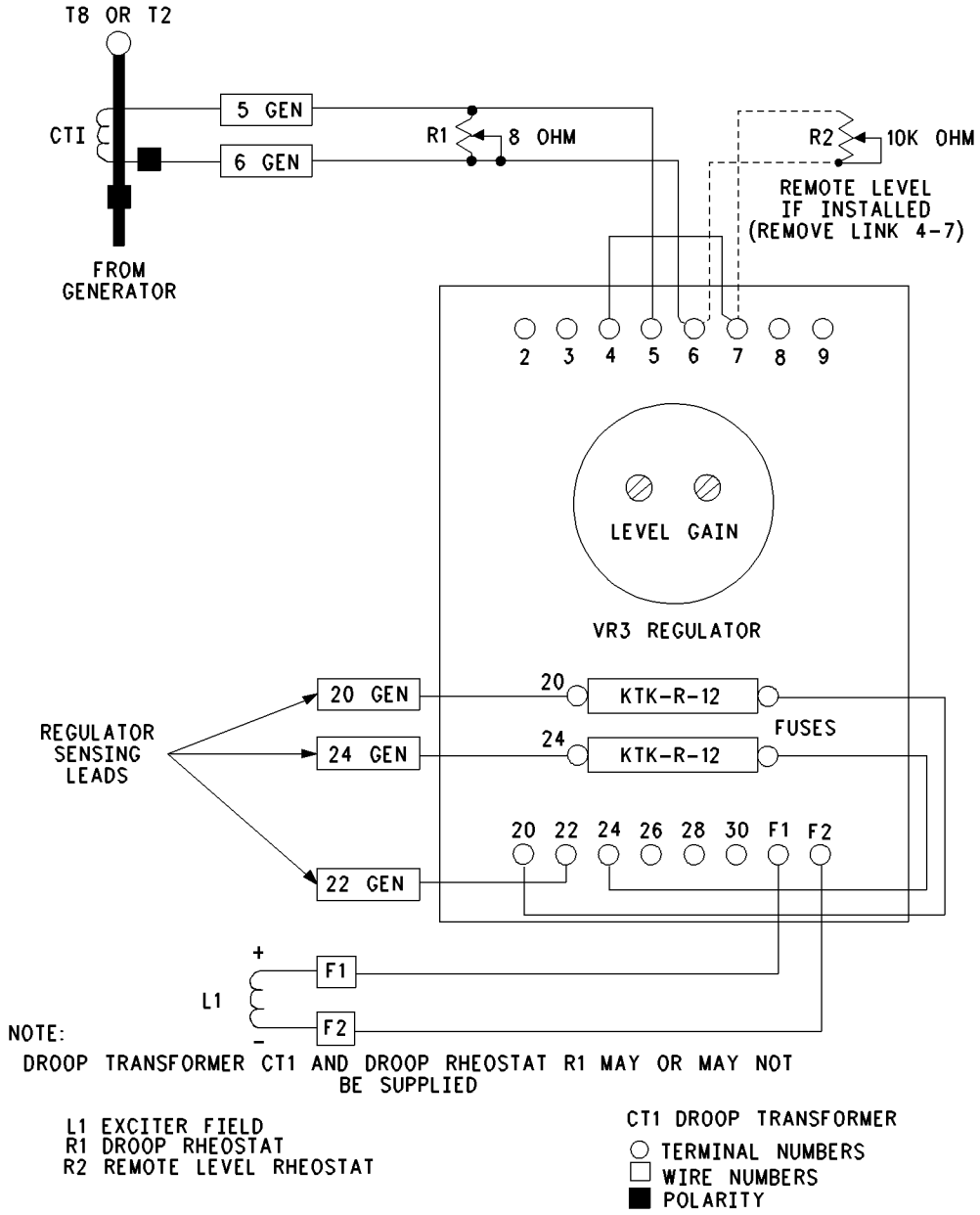
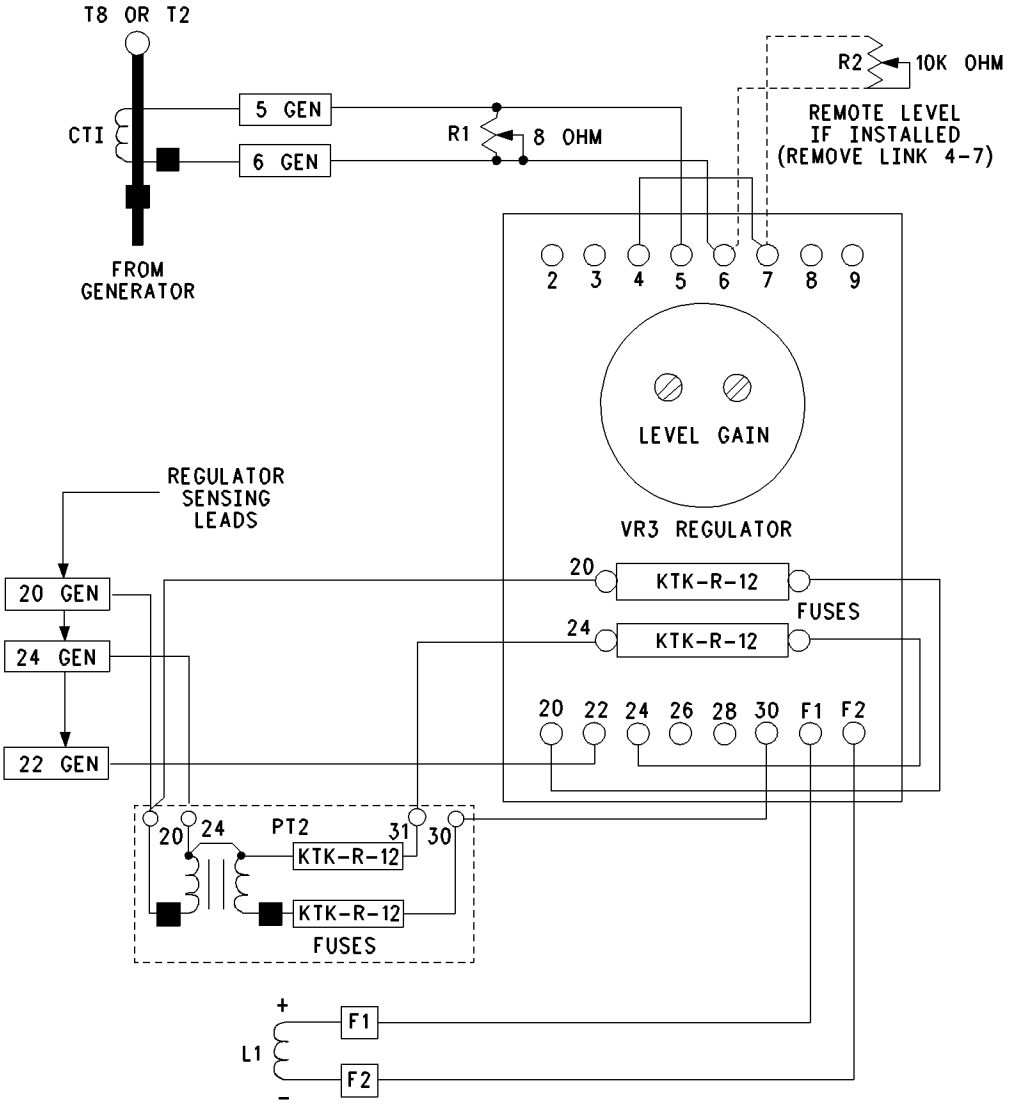


Illustration 13 g00703900

Self Excited with Power Transformer 4/6 Lead Generator



NOTE:
DROOP TRANSFORMER CT1 AND DROOP RHEOSTAT R1 MAY OR MAY NOT BE SUPPLIED

L1 EXCITER FIELD
R1 DROOP RHEOSTAT
R2 REMOTE LEVEL RHEOSTAT
CT1 DROOP TRANSFORMER

PT2 POWER TRANSFORMER
○ TERMINAL NUMBERS
□ WIRE NUMBERS
■ POLARITY

Illustration 14 g00703908

Self Excited with Power and Sensing Isolation Transformer

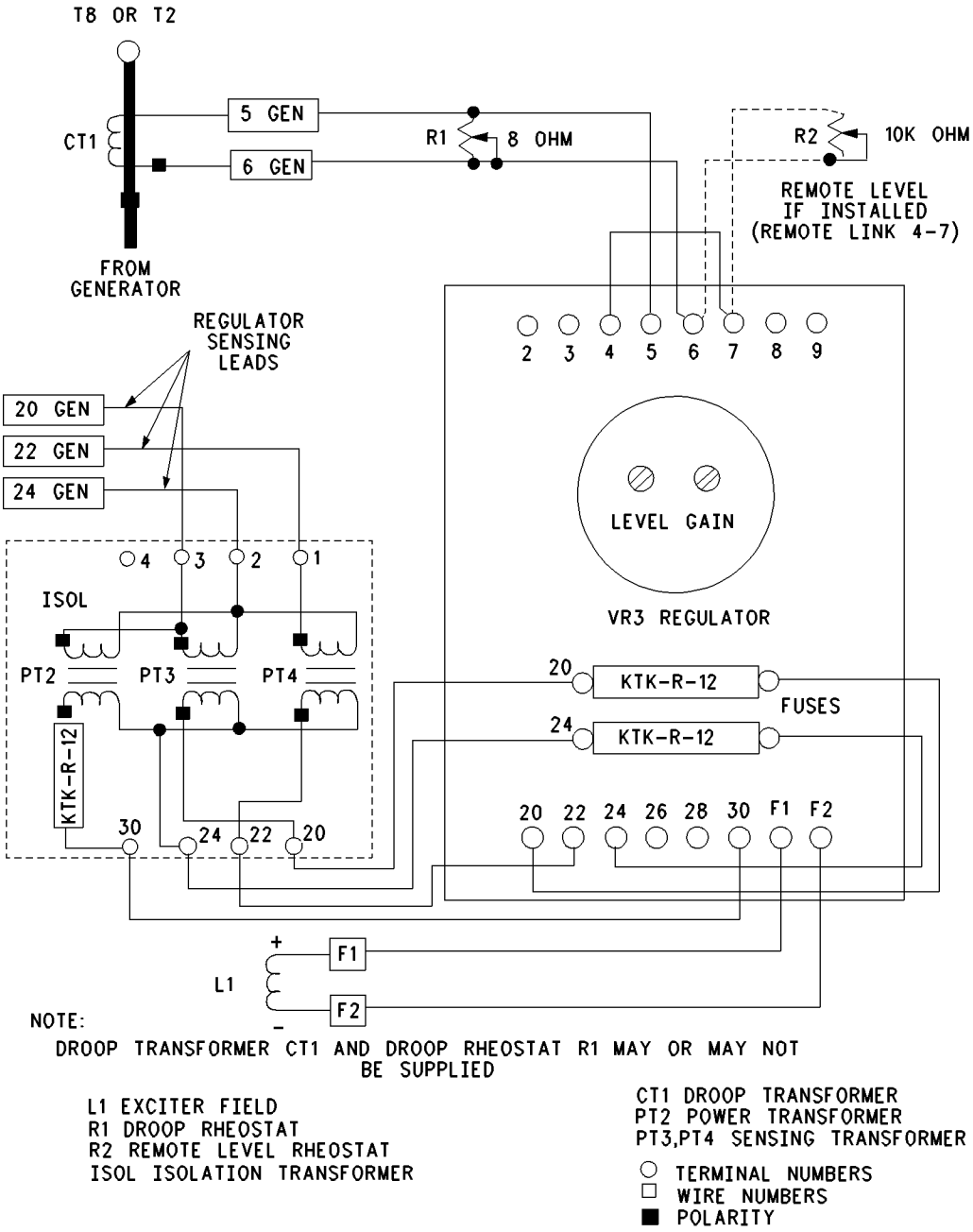


Illustration 15 g00703914

Permanent Magnet Excitation with Direct Connection to Generator

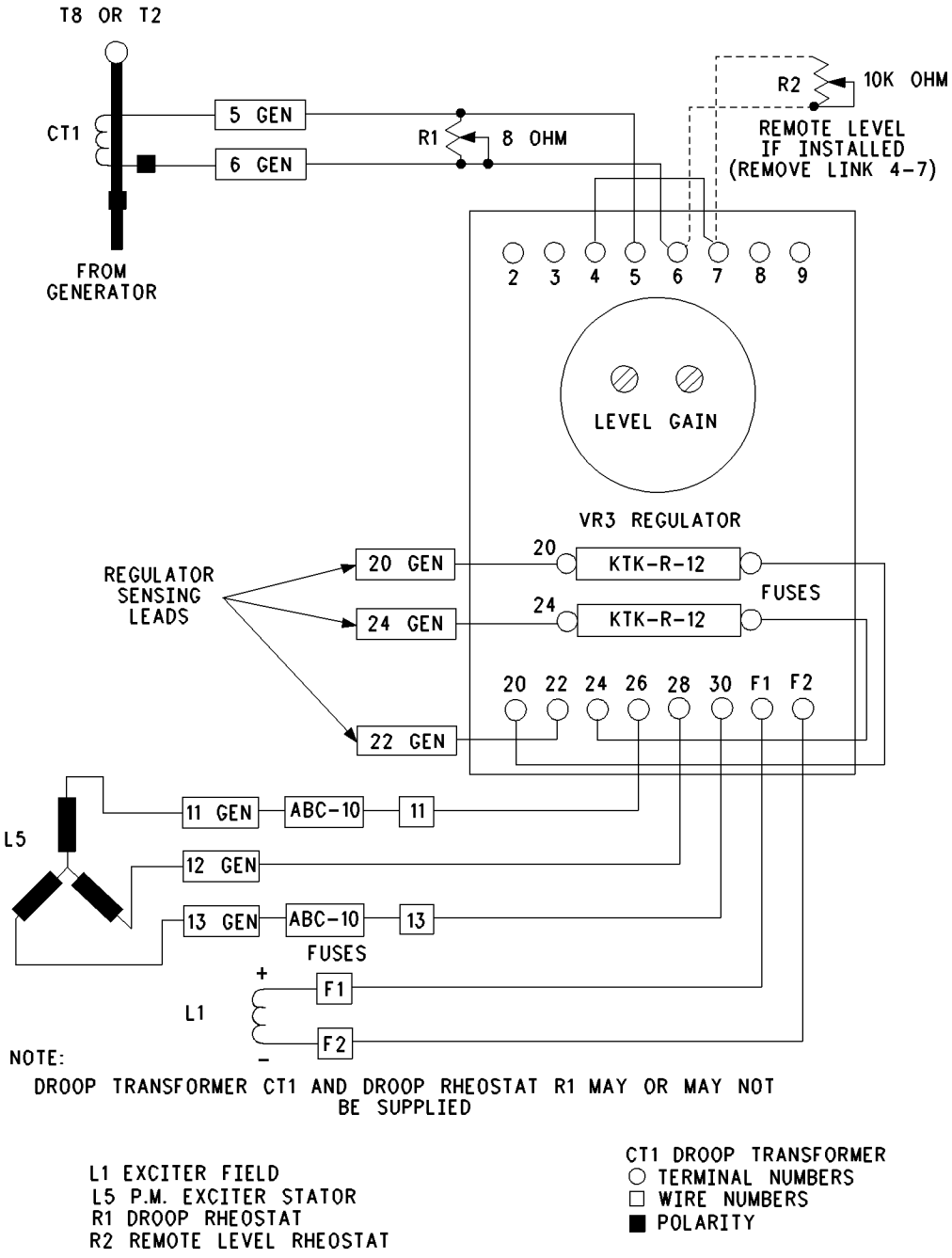


Illustration 16

g00701046

Permanent Magnet Excitation with Connections to Metering Potential Transformers

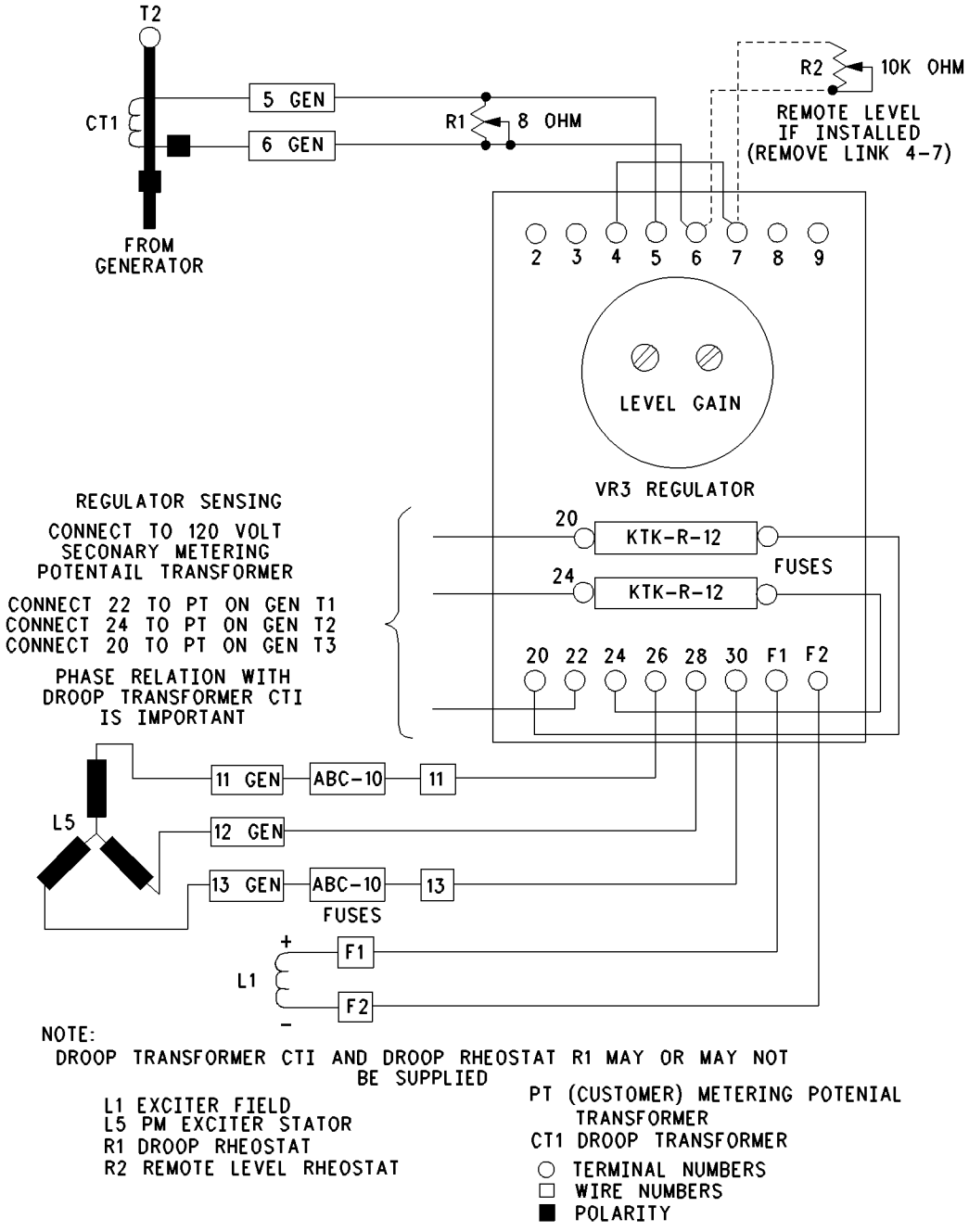


Illustration 17 g00701050

Permanent Magnet Excitation with Connections to an Isolation Transformer

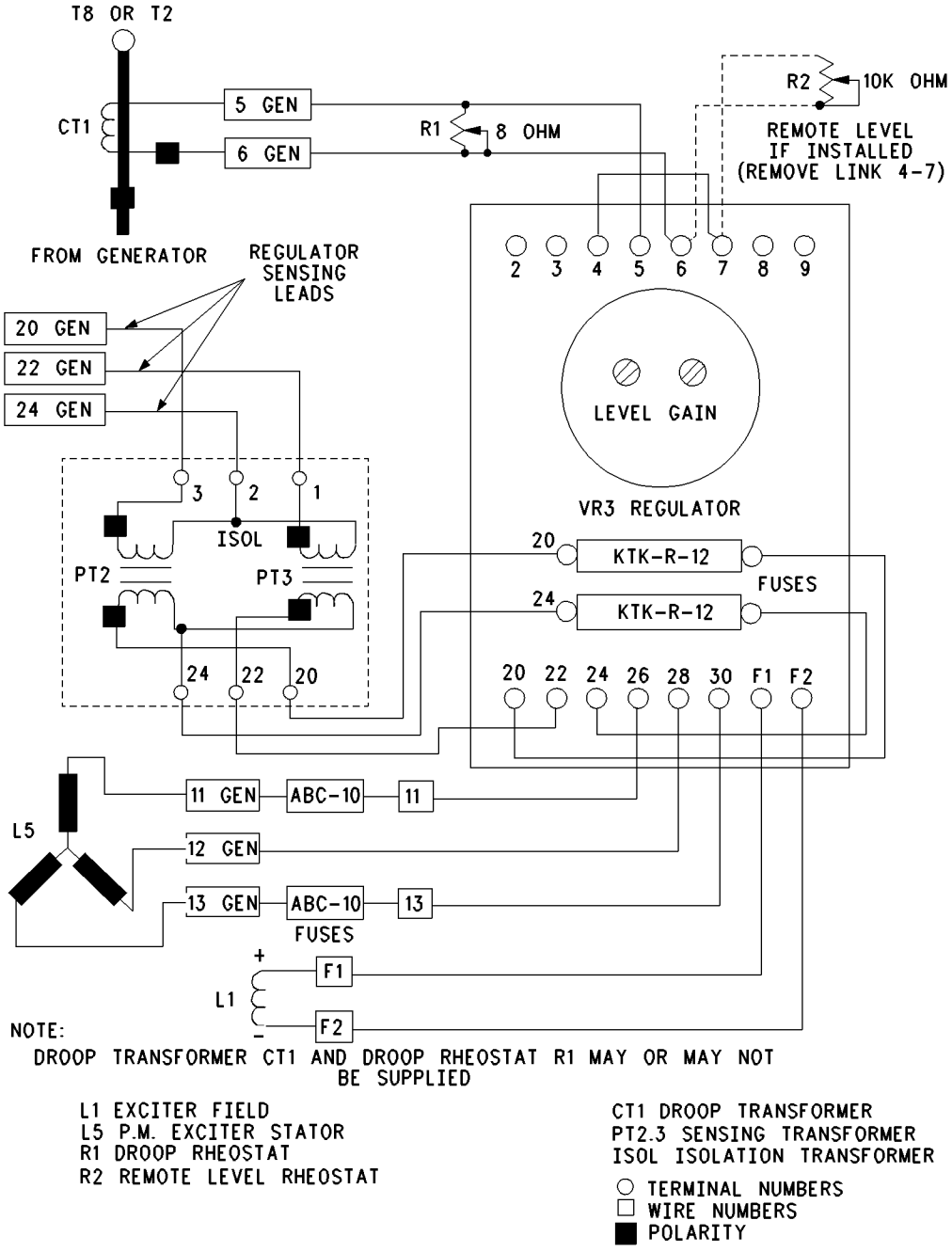


Illustration 18

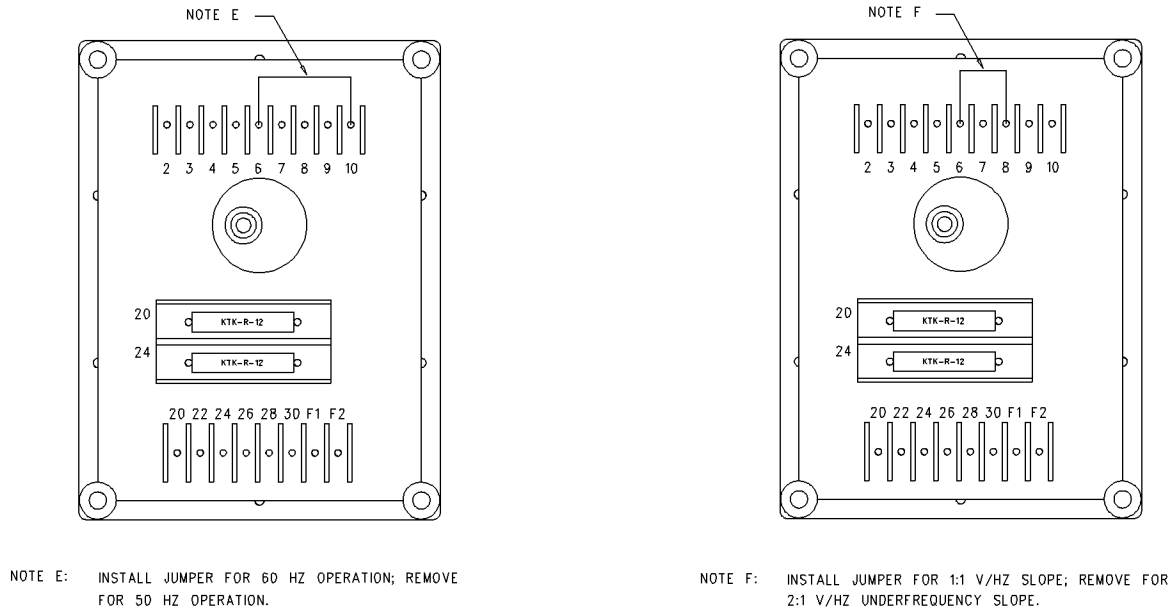
g00703923

i01314685

VR3F Voltage Regulator Connections (All Except SR4B for 3500 Engines)

SMCS Code: 4467

Knee Frequency and Underfrequency Selection



NOTE E: INSTALL JUMPER FOR 60 HZ OPERATION; REMOVE FOR 50 HZ OPERATION.

NOTE F: INSTALL JUMPER FOR 1:1 V/HZ SLOPE; REMOVE FOR 2:1 V/HZ UNDERFREQUENCY SLOPE.

Illustration 19 g00695812

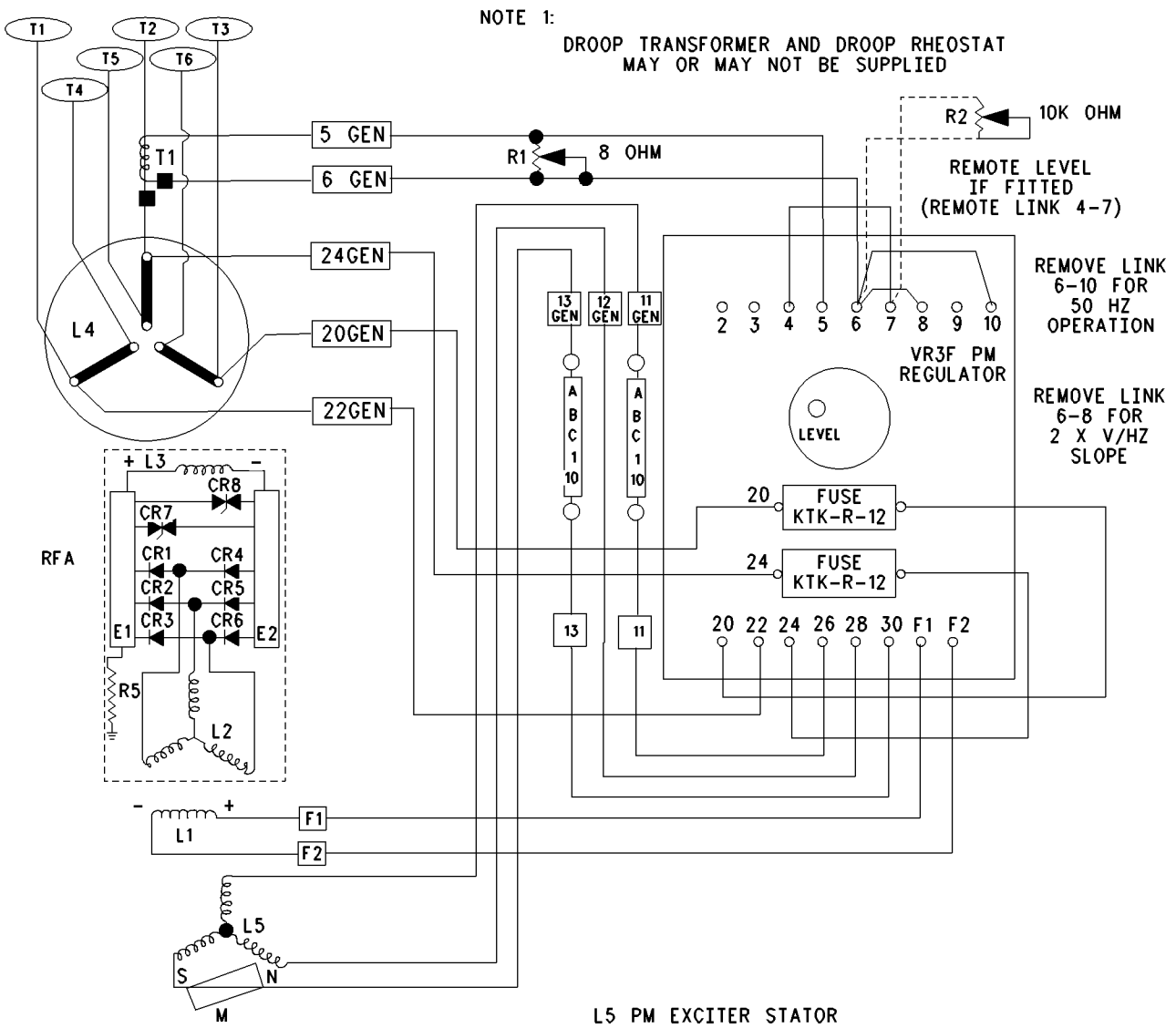
The physical differences between the VR3 and the VR3F are minor. The hole for Gain adjustment is eliminated and another terminal is added to the upper row (terminal 10) on the VR3F.

All VR3F connections to the generator or external options are identical to the VR3. The additional wiring for the VR3F is shown in the previous diagram.

The following information is applicable to both VR3F designs: Self-Excited and Permanent Magnet Excited.

- In order to determine the knee frequency, install a jumper from terminal 6 to terminal 10 on the regulator if the generator is operating at 60 Hz. If the generator is operating at 50 Hz, remove the jumper.
- In order to determine the underfrequency slope selection, install a jumper from terminal 6 to terminal 8 on the regulator if a 1:1 Volts/Hertz underfrequency slope is desired. remove the jumper If a 2:1 Volts/Hertz underfrequency slope is needed.

Typical Permanent Magnet Excited VR3F



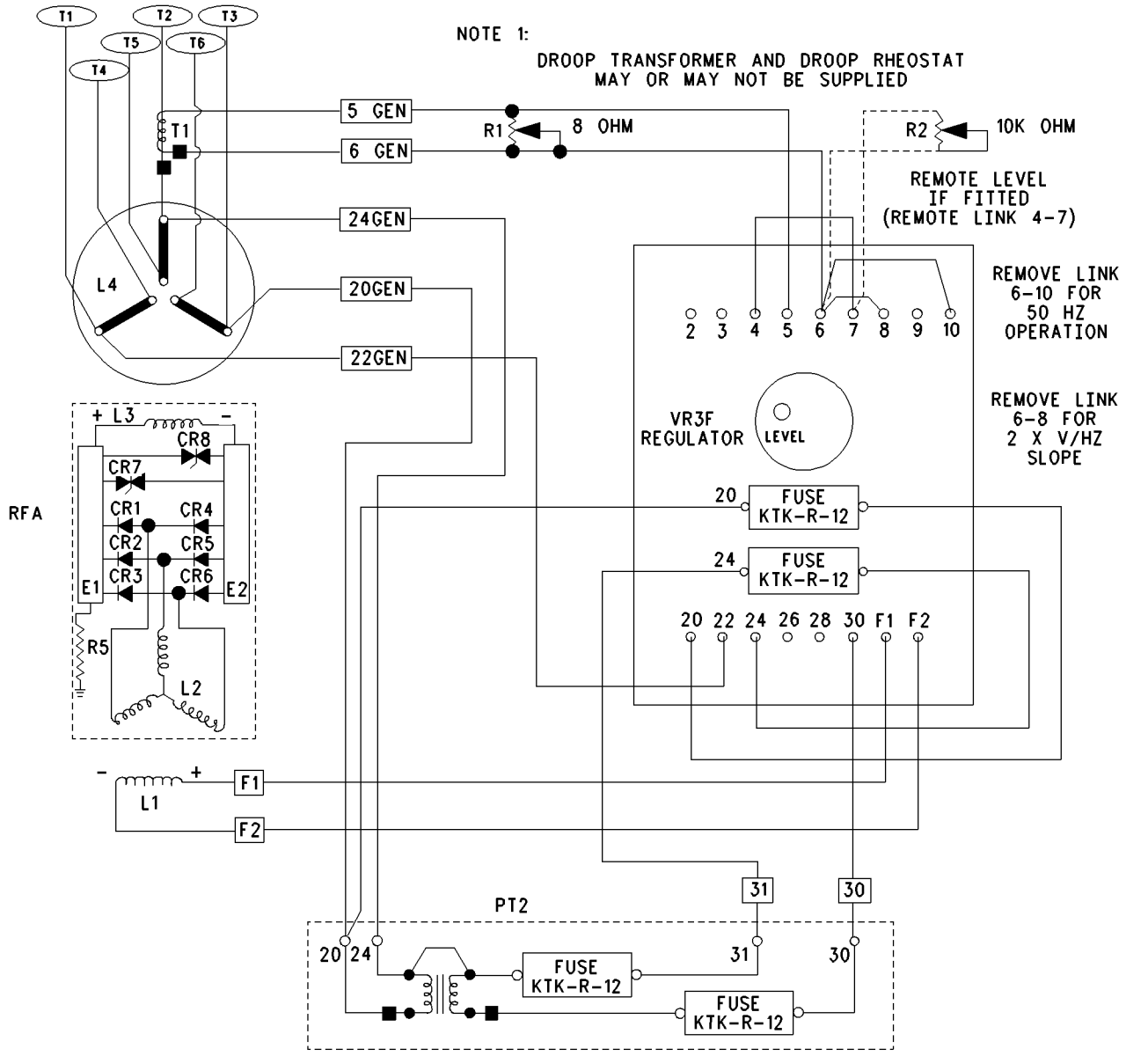
SR-4 GENERATOR SCHEMATIC (4/6 LEAD. PERMANENT MAGNET EXCITED W/ 2 PM FUSES

NOTE: GENERATOR STATOR LEADS TERMINALS T4, T5, AND T6 CAN BE CONNECTED TO FORM THE NEUTRAL LEAD (T0) ON SIX LEAD GENERATORS.

NOTE:

Illustration 20 g00702144

Typical Self Excited VR3F



CR1-6 ROTATING RECTIFIERS
CR7.8 SURGE SUPPRESSION DIODES
E1 POSITIVE HEAT SINK
E2 NEGATIVE HEAT SINK
L1 EXCITER FIELD
L2 EXCITER ARMATURE
L3 ROTATING FIELD
L4 STATOR
■ POLARITY MARKING

R1 VOLTAGE DROOP RHEOSTAT (SEE NOTE 1)
R2 REMOTE LEVEL RHEOSTAT
R5 SUPPRESSION RESISTOR
RFA REVOLVING FIELD ASS'Y
T1 VOLTAGE DROOP TRANSFORMER (SEE NOTE 1)
PT2 POWER TRANSFORMER ASSEMBLY
○ TERMINAL BOARD NUMBER
□ WIRE NUMBER

SR-4 GENERATOR SCHEMATIC (4/6 LEAD. SELF-EXCITED W/POWER TRANSFORMER)

NOTE: GENERATOR STATOR LEADS TERMINALS T4, T5, AND T6 WILL BE INTERNALLY CONNECTED TO FORM THE NEUTRAL LEAD (T0) ON FOUR LEAD GENERATORS.

Illustration 21 g00702012

i01320368

VR4 Voltage Regulator Connections (All Except SR4B for 3500 Engines)

SMCS Code: 4467

Self Excited with Direct Connection to Generator

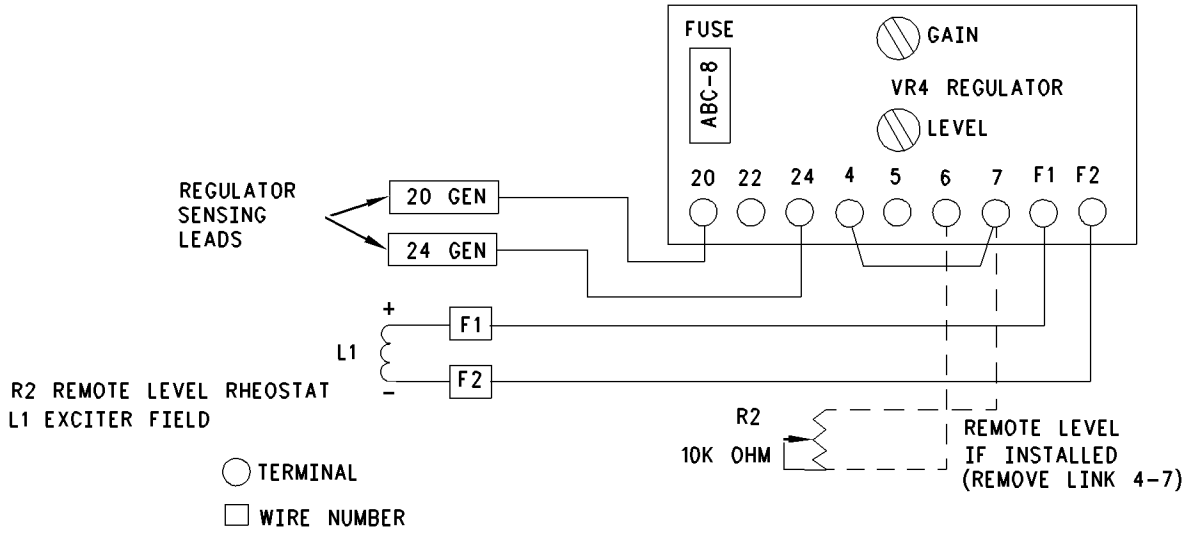


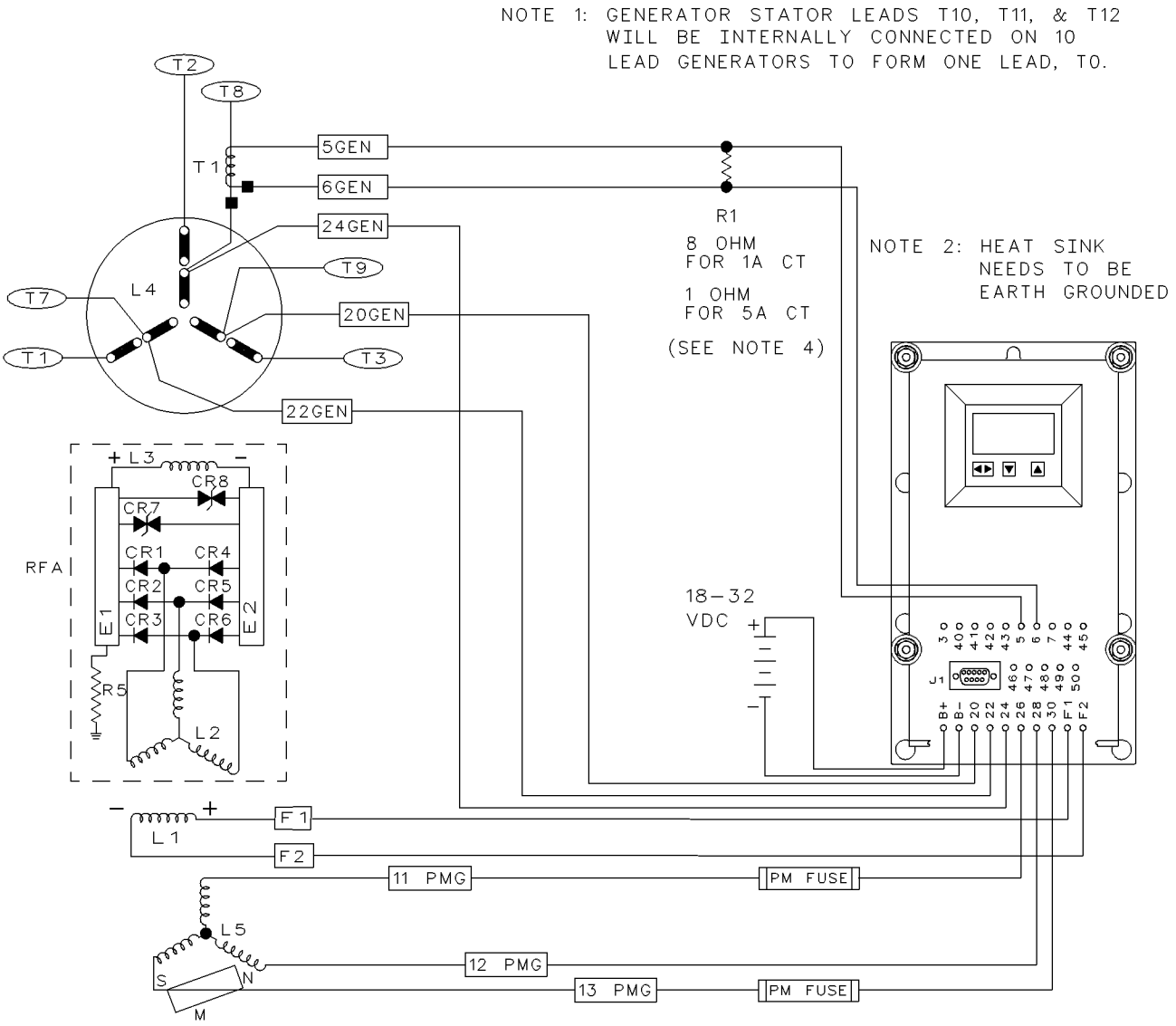
Illustration 22 g00702155

i01314468

Digital Voltage Regulator Connections (All Except SR4B for 3500 Engines)

SMCS Code: 4467

10/12 Lead with Direct Connection to Generator



CR1−6 ROTATING RECTIFIERS
CR7,8 SURGE SUPPRESSION DIODES
E1 POSITIVE HEAT SINK
E2 NEGATIVE HEAT SINK
L1 EXCITOR FIELD (STATOR)
L2 EXCITER ARMATURE(ROTOR)
L3 REVOLVING FIELD(MAIN ROTOR)
L4 MAIN STATOR
L5 PM EXCITOR STATOR

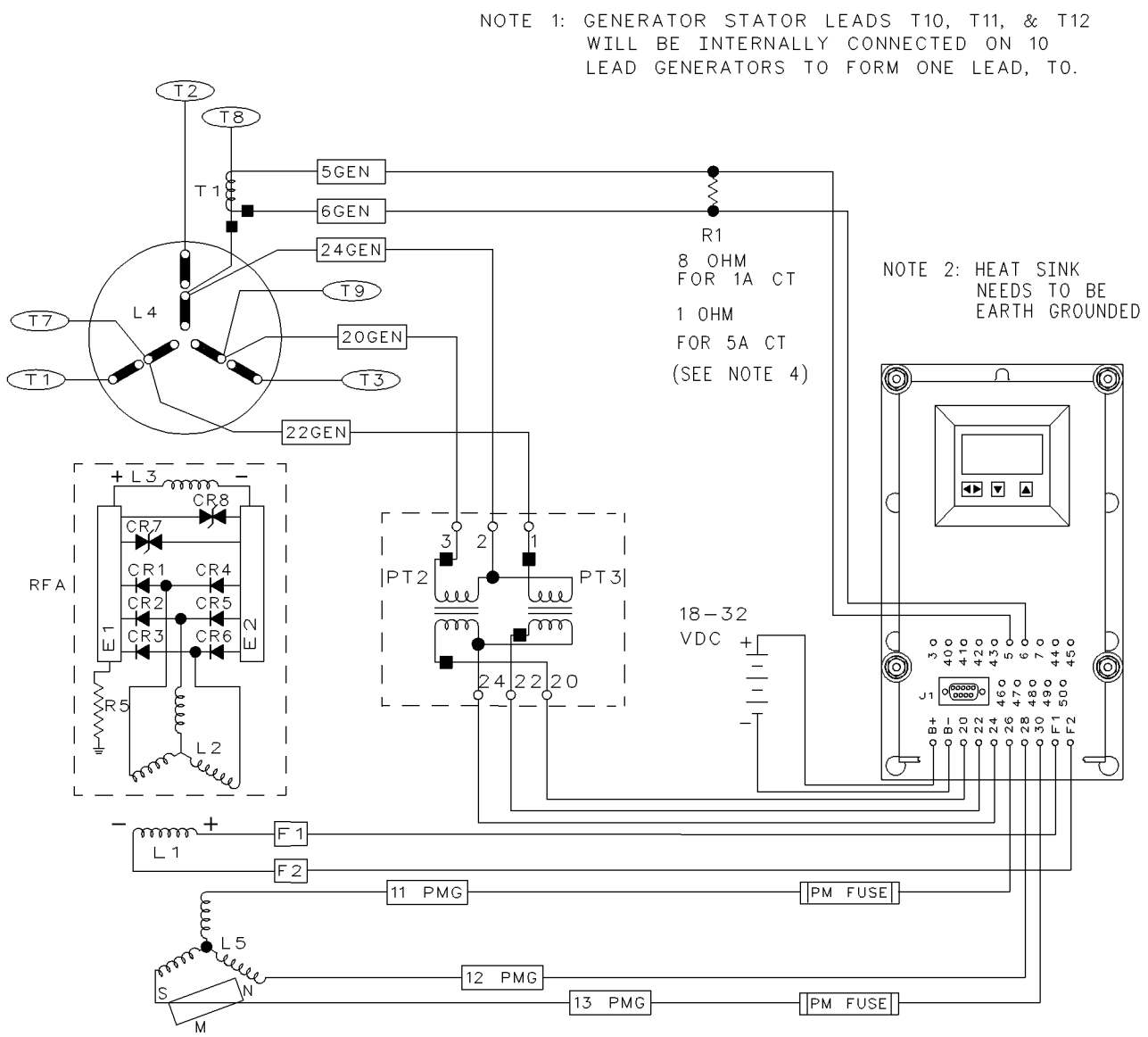
NOTE 3: DROOP TRANSFORMER AND DROOP BURDEN RESISTOR MAY OR MAY NOT BE SUPPLIED

M ROTATING PERMANENT MAGNET
R1 VOLTAGE DROOP BURDEN RESISTOR (SEE NOTE 3)
R5 SUPRESSION RESISTOR
RFA REVOLVING FIELD ASS'Y
T1 VOLTAGE DROOP TRANSFORMER (SEE NOTE 3)
□ WIRE NUMBER
○ TERMINAL BOARD NUMBER
■ POLARITY MARKING

NOTE 4: R1 TO BE MOUNTED WITHIN 3 METERS (10 FEET) OF THE REGULATOR

Illustration 23 g00539518

10/12 Lead with Sensing Isolation Transformer



CR1−6 ROTATING RECTIFIERS
CR7,8 SURGE SUPPRESSION DIODES
E1 POSITIVE HEAT SINK
E2 NEGATIVE HEAT SINK
L1 EXCITOR FIELD (STATOR)
L2 EXCITER ARMATURE(ROTOR)
L3 REVOLVING FIELD(MAIN ROTOR)
L4 MAIN STATOR
L5 PM EXCITOR STATOR

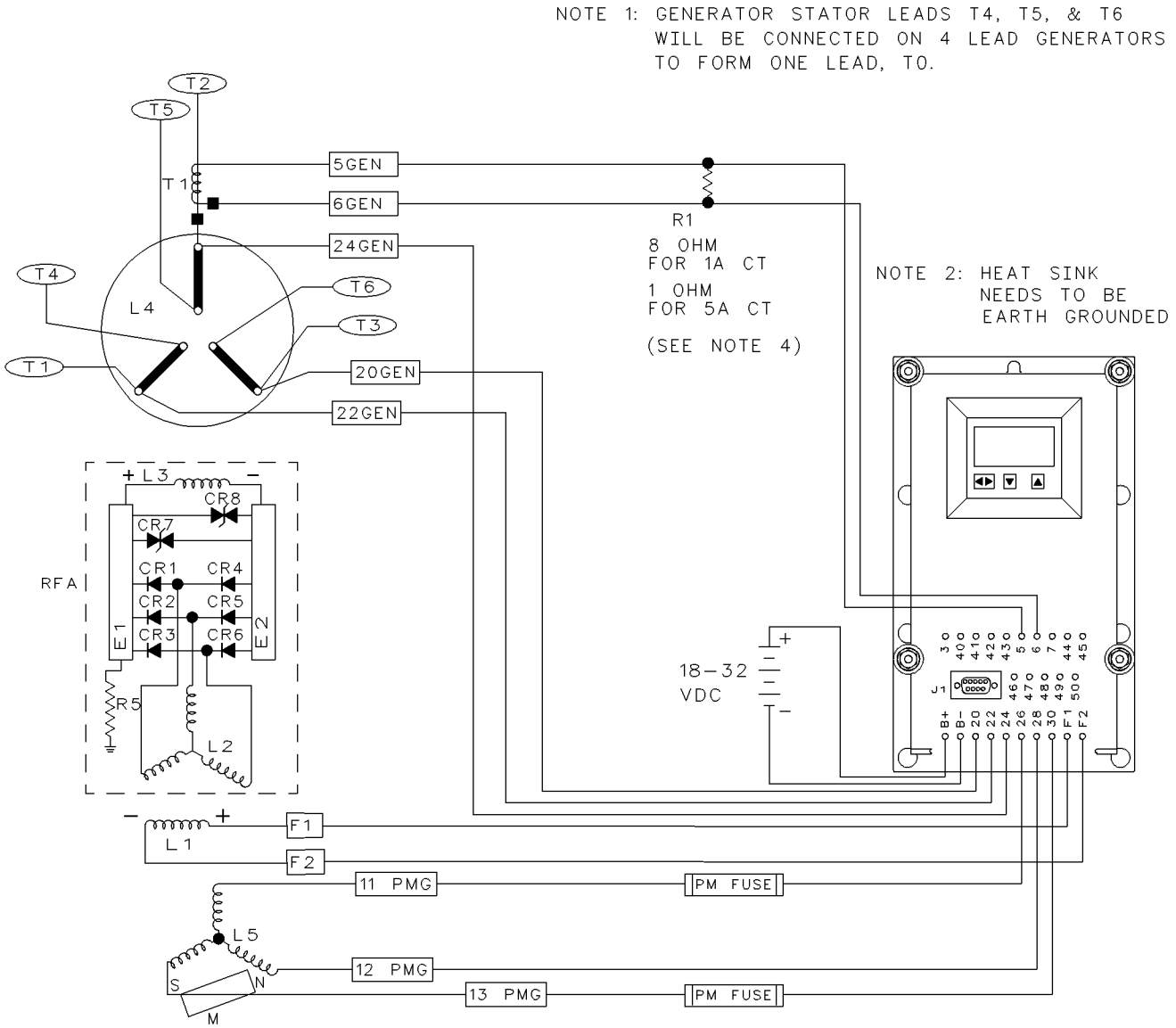
NOTE 3: DROOP TRANSFORMER AND DROOP BURDEN RESISTOR MAY OR MAY NOT BE SUPPLIED

M ROTATING PERMANENT MAGNET
R1 VOLTAGE DROOP BURDEN RESISTOR (SEE NOTE 3)
R5 SUPRESSION RESISTOR
RFA REVOLVING FIELD ASS'Y
T1 VOLTAGE DROOP TRANSFORMER (SEE NOTE 3)
PT2, PT3 SENSING ISOLATION TRANSFORMERS
□ WIRE NUMBER
○ TERMINAL BOARD NUMBER
■ POLARITY MARKING

NOTE 4: R1 TO BE MOUNTED WITHIN 3 METERS (10 FEET) OF THE REGULATOR

Illustration 24 g00539520

4/6 Lead with Direct Connection to Generator



CR1−6 ROTATING RECTIFIERS
CR7,8 SURGE SUPPRESSION DIODES
E1 POSITIVE HEAT SINK
E2 NEGATIVE HEAT SINK
L1 EXCITER FIELD (STATOR)
L2 EXCITER ARMATURE(ROTOR)
L3 REVOLVING FIELD(MAIN ROTOR)
L4 MAIN STATOR
L5 PM EXCITER STATOR

NOTE 3: DROOP TRANSFORMER AND DROOP BURDEN RESISTOR MAY OR MAY NOT BE SUPPLIED

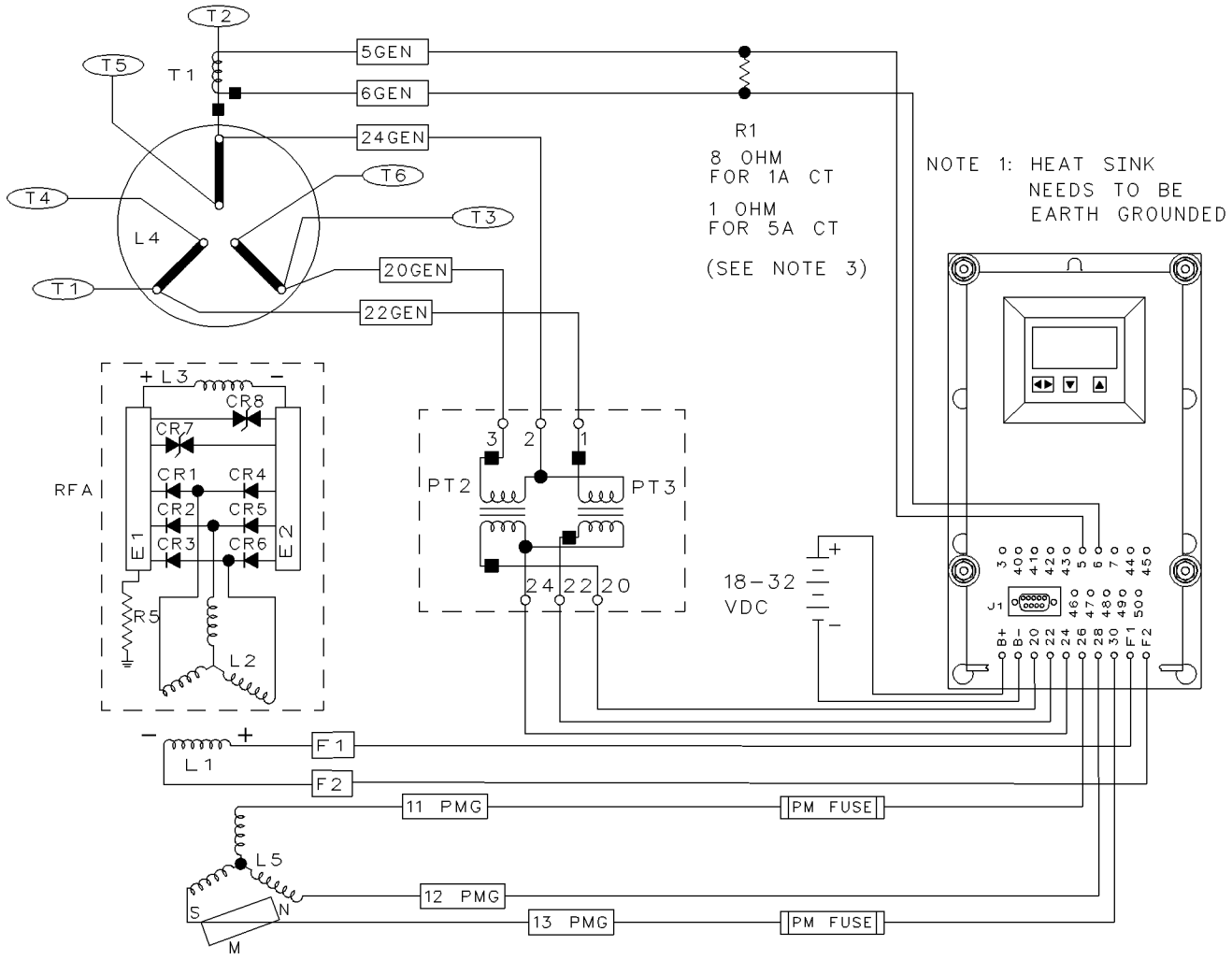
M ROTATING PERMANENT MAGNET
R1 VOLTAGE DROOP BURDERN RESISTOR (SEE NOTE 3)
R5 SUPRESSION RESISTOR
RFA REVOLVING FIELD ASS'Y
T1 VOLTAGE DROOP TRANSFORMER (SEE NOTE 3)
□ WIRE NUMBER
○ TERMINAL BOARD NUMBER
■ POLARITY MARKING

NOTE 4: R1 TO BE MOUNTED WITHIN 3 METERS (10 FEET) OF THE REGULATOR

Illustration 25

g00539494

4/6 Lead with Sensing Isolation Transformer



CR1–6 ROTATING RECTIFIERS
CR7,8 SURGE SUPPRESSION DIODES
E1 POSITIVE HEAT SINK
E2 NEGATIVE HEAT SINK

L2 EXCITER ARMATURE(ROTOR)
L3 REVOLVING FIELD(MAIN ROTOR)
L4 MAIN STATOR

PT2, PT3 SENSING/ISOLATION TRANSFORMERS
M ROTATING PERMANENT MAGNET
R1 VOLTAGE DROOP BURDEN RESISTOR (SEE NOTE 2)
R5 SUPRESSION RESISTOR
RFA REVOLVING FIELD ASS'Y
T1 VOLTAGE DROOP TRANSFORMER (SEE NOTE 2)
□ WIRE NUMBER
○ TERMINAL BOARD NUMBER
■ POLARITY MARKING

NOTE 2: DROOP TRANSFORMER AND DROOP BURDEN RESISTOR MAY OR MAY NOT BE SUPPLIED

NOTE 3: R1 TO BE MOUNTED WITHIN 3 METERS (10 FEET) OF THE REGULATOR

Illustration 26 g00539496

i01330242

Options (All Except SR4B for 3500 Engines)

SMCS Code: 4450

Manual Control with Self Excitation

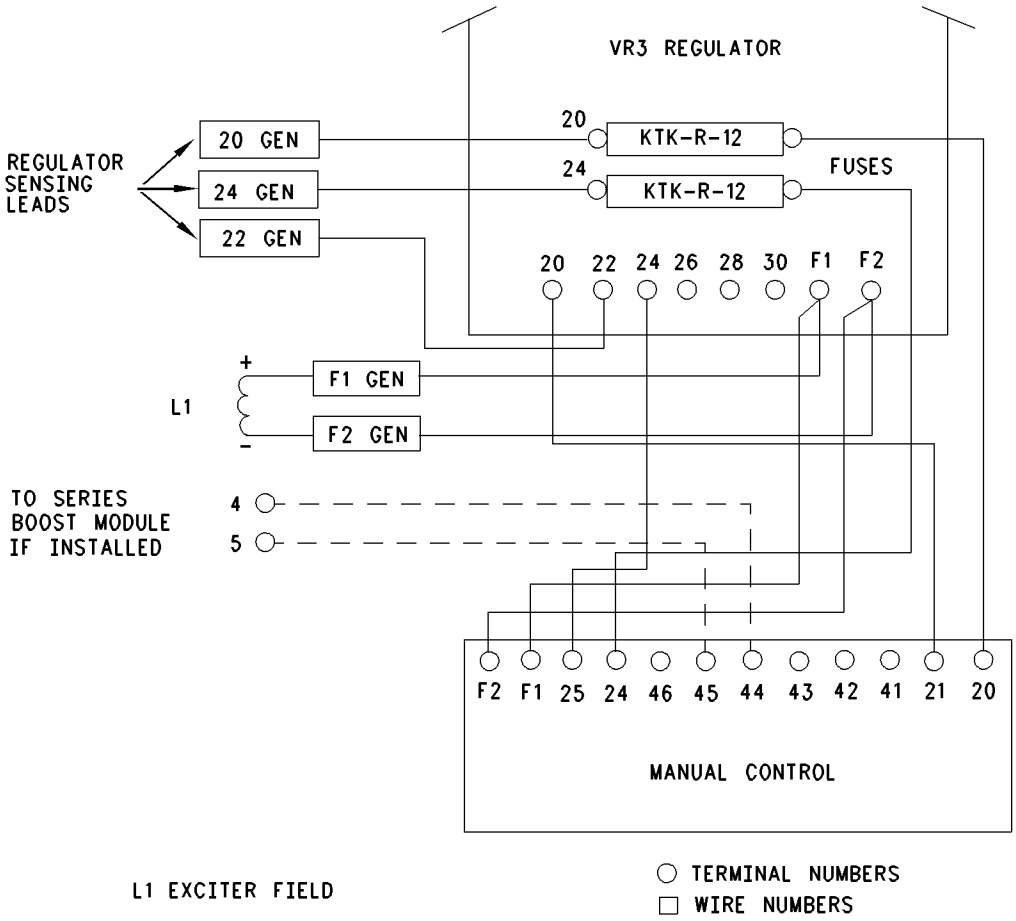


Illustration 27 g00702017

Manual Control with Power Transformer

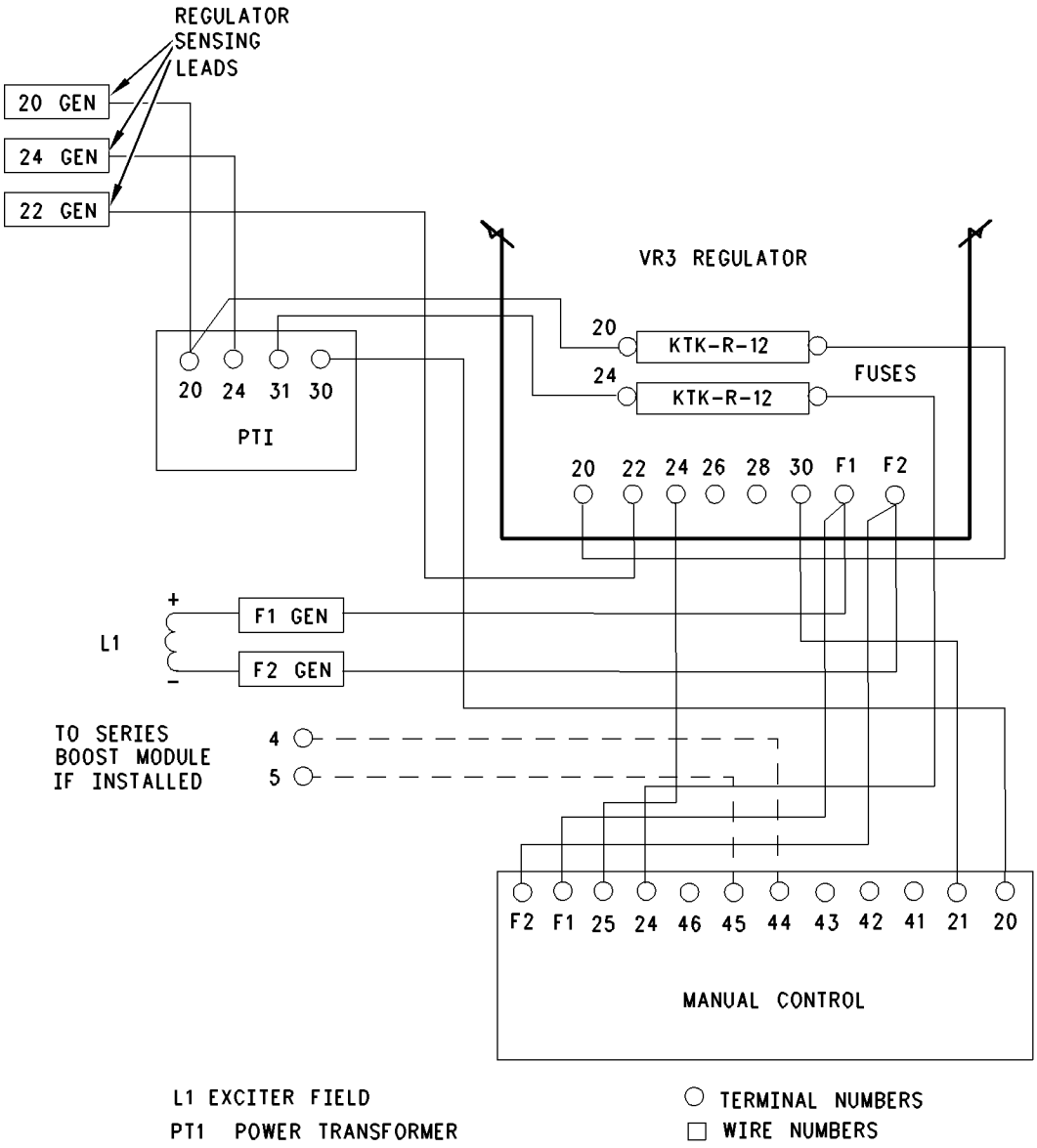


Illustration 28 g00702135

Manual Control with Permanent Magnet Exciter

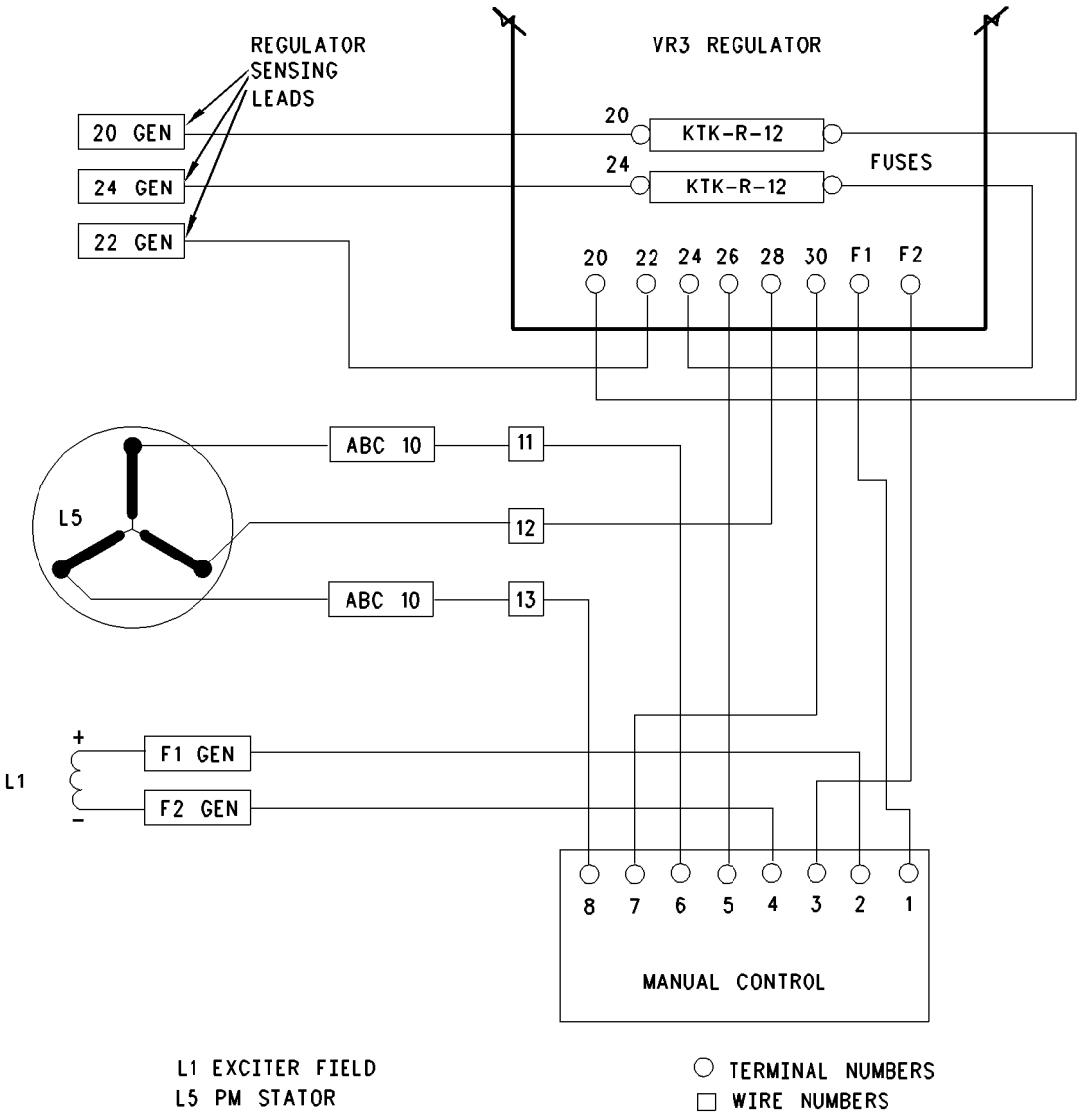


Illustration 29 g00702138

Radio Interference Filter

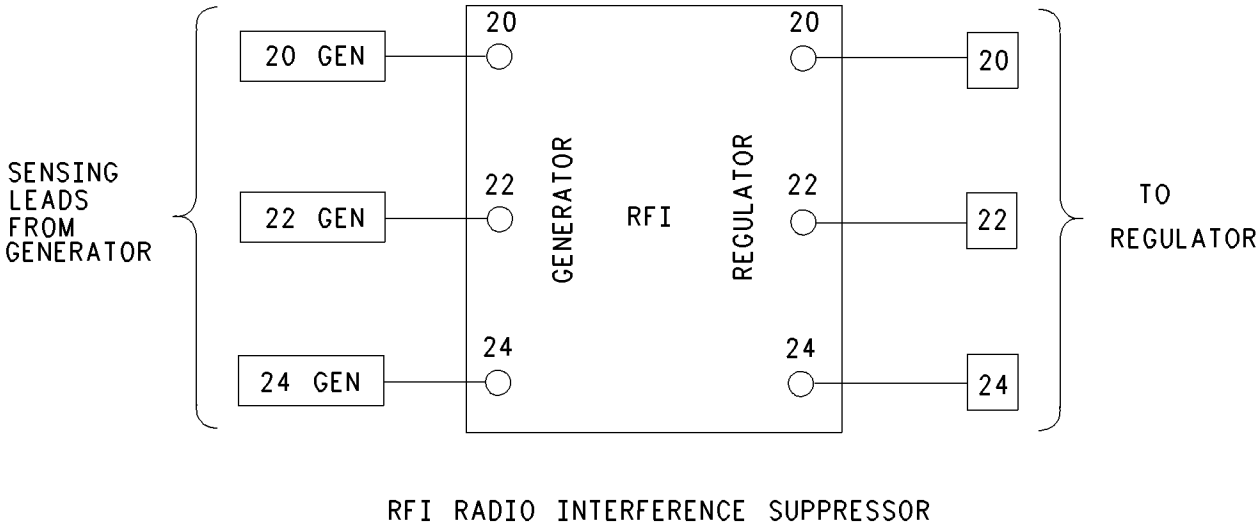
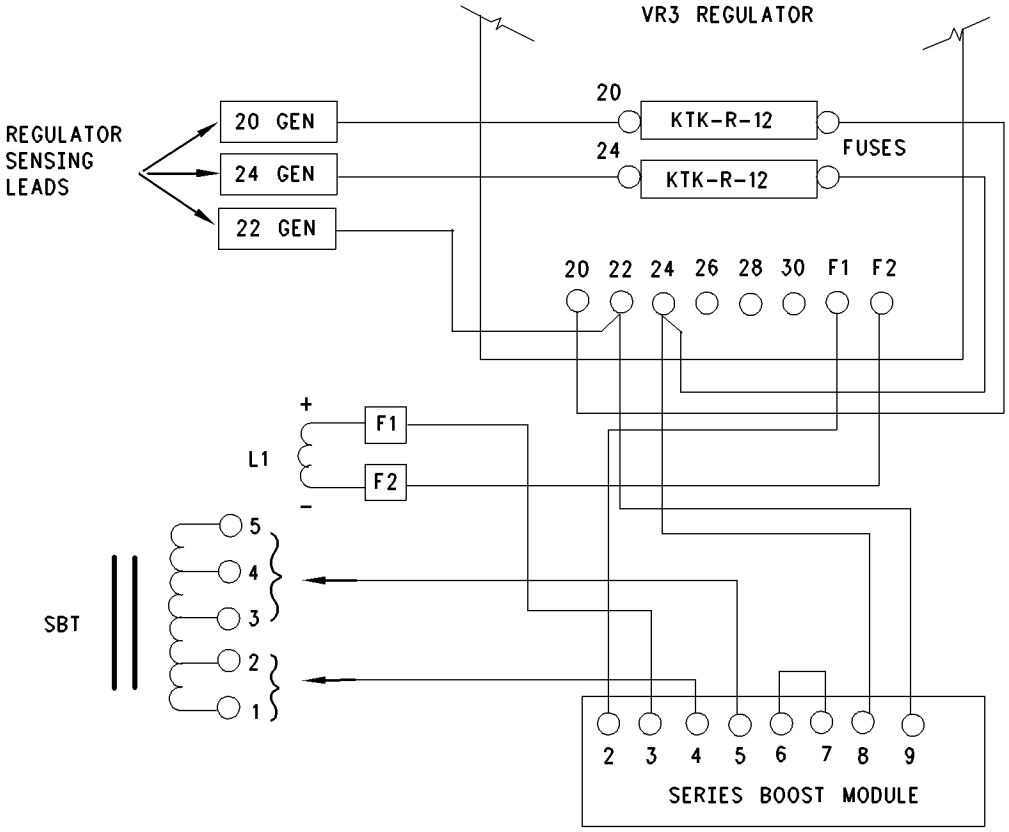


Illustration 30 g00703931

Series Boost with VR3 Voltage Regulator



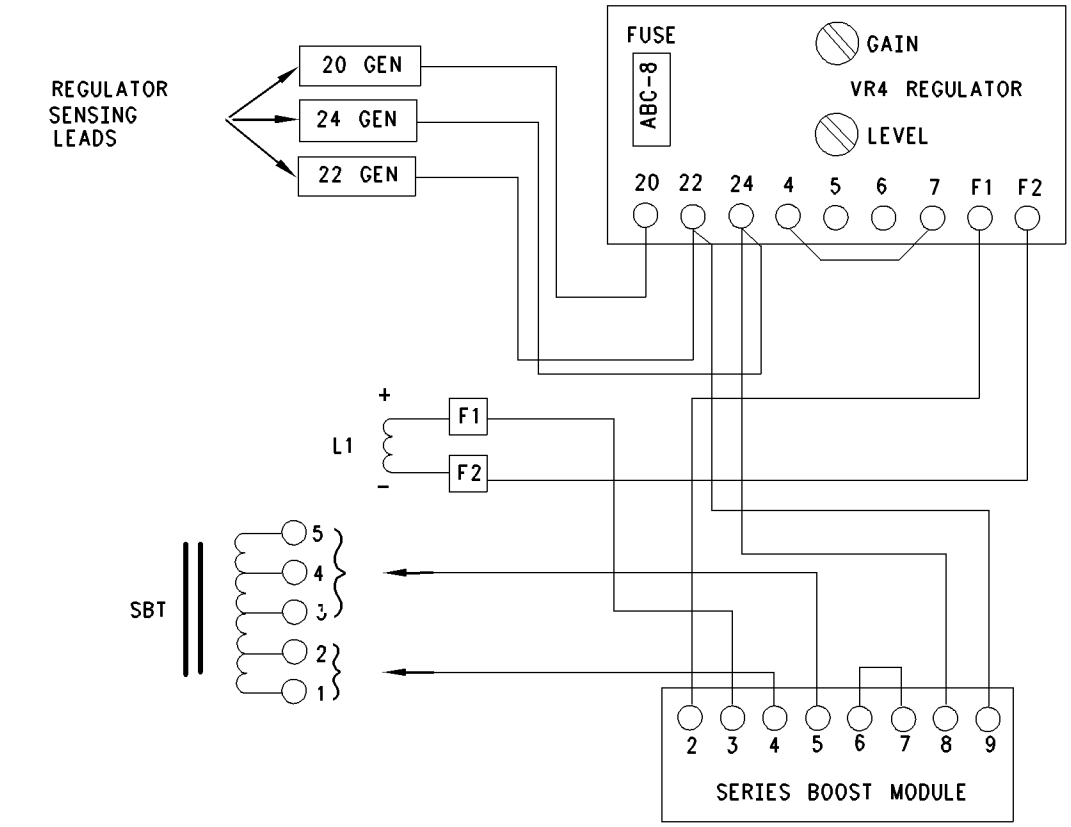
NOTE:
REMOVE LINK 6-7 FOR 50 HZ OPERATION

L1 EXCITER FIELD
SBT SERIES BOOST TRANSFORMER

○ TERMINAL NUMBERS
□ WIRE NUMBERS

Illustration 31 g00702027

Series Boost with VR4 Voltage Regulator



NOTE:
REMOVE LINK 6-7 FOR 50 HZ OPERATION

L1 EXCITER FIELD
SBT SERIES BOOST TRANSFORMER

○ TERMINAL NUMBERS
□ WIRE NUMBERS

Illustration 32 g00702036

Manual Control and Series Boost with Self Excitor

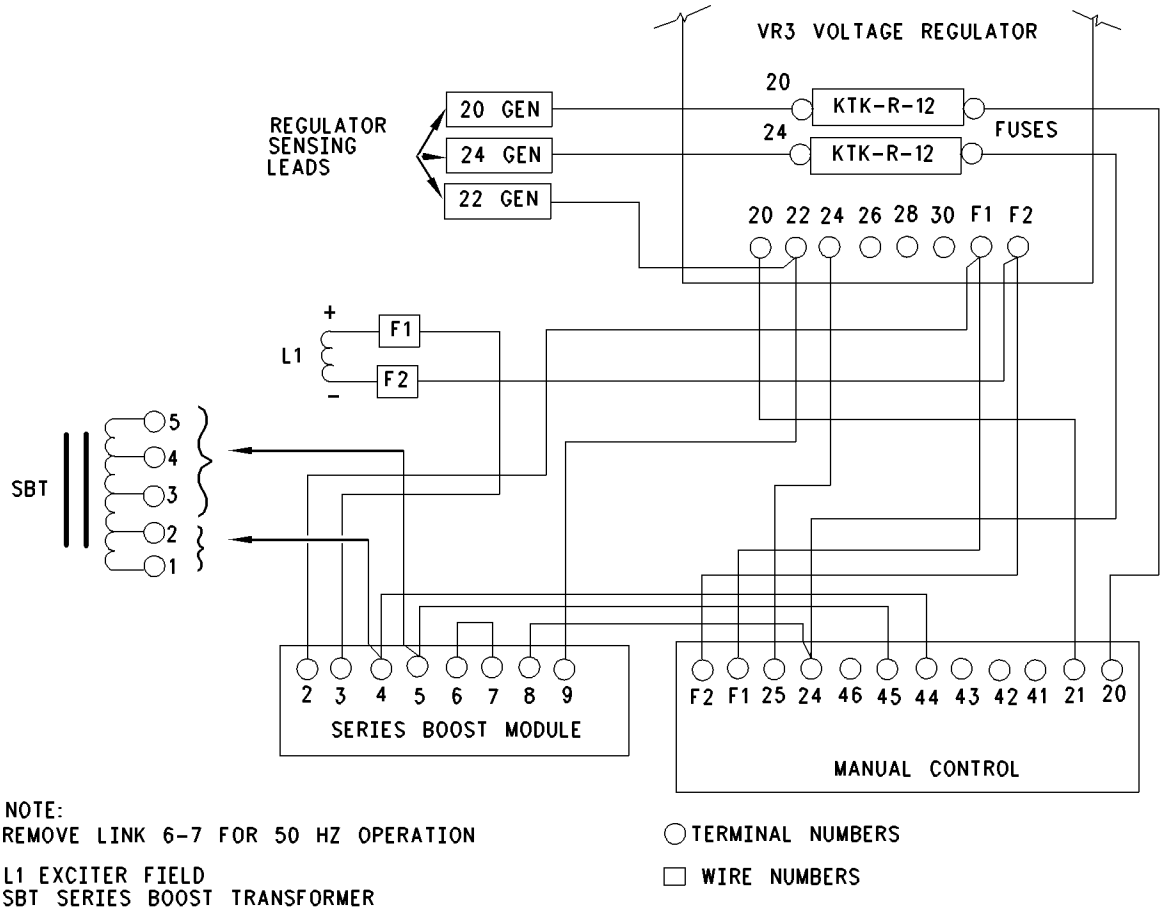
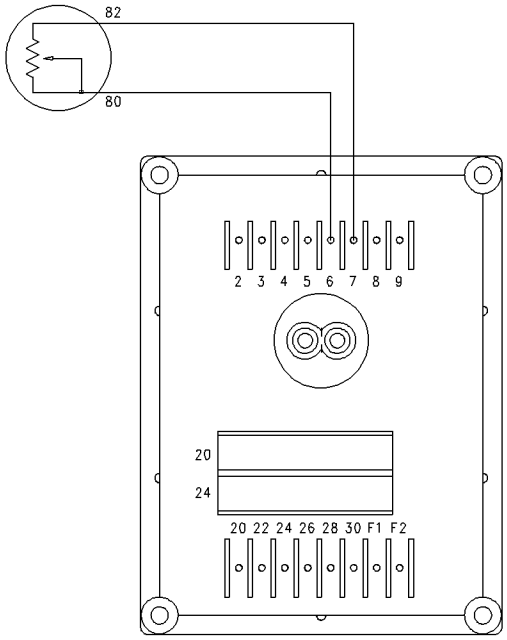
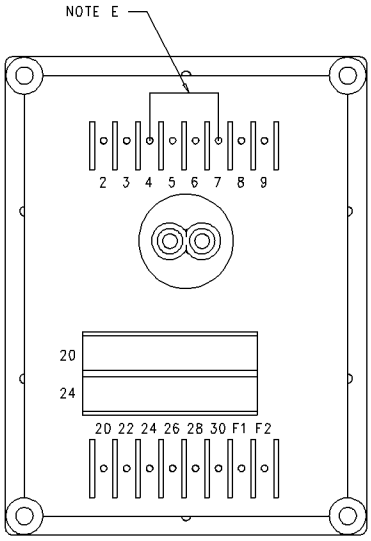


Illustration 33 g00702180

Remote Voltage Adjust Rheostat Connections



CONNECTION WHEN REMOTE VOLTAGE ADJUST RHEOSTAT IS PROVIDED



CONNECTION WITH NO REMOTE VOLTAGE ADJUST RHEOSTAT

NOTE E: JUMPER MUST BE INSTALLED IF REMOTE VOLTAGE ADJUST RHEOSTAT IS NOT PROVIDED.

Illustration 34

g00695920

Digital Voltage Regulator with Manual Control

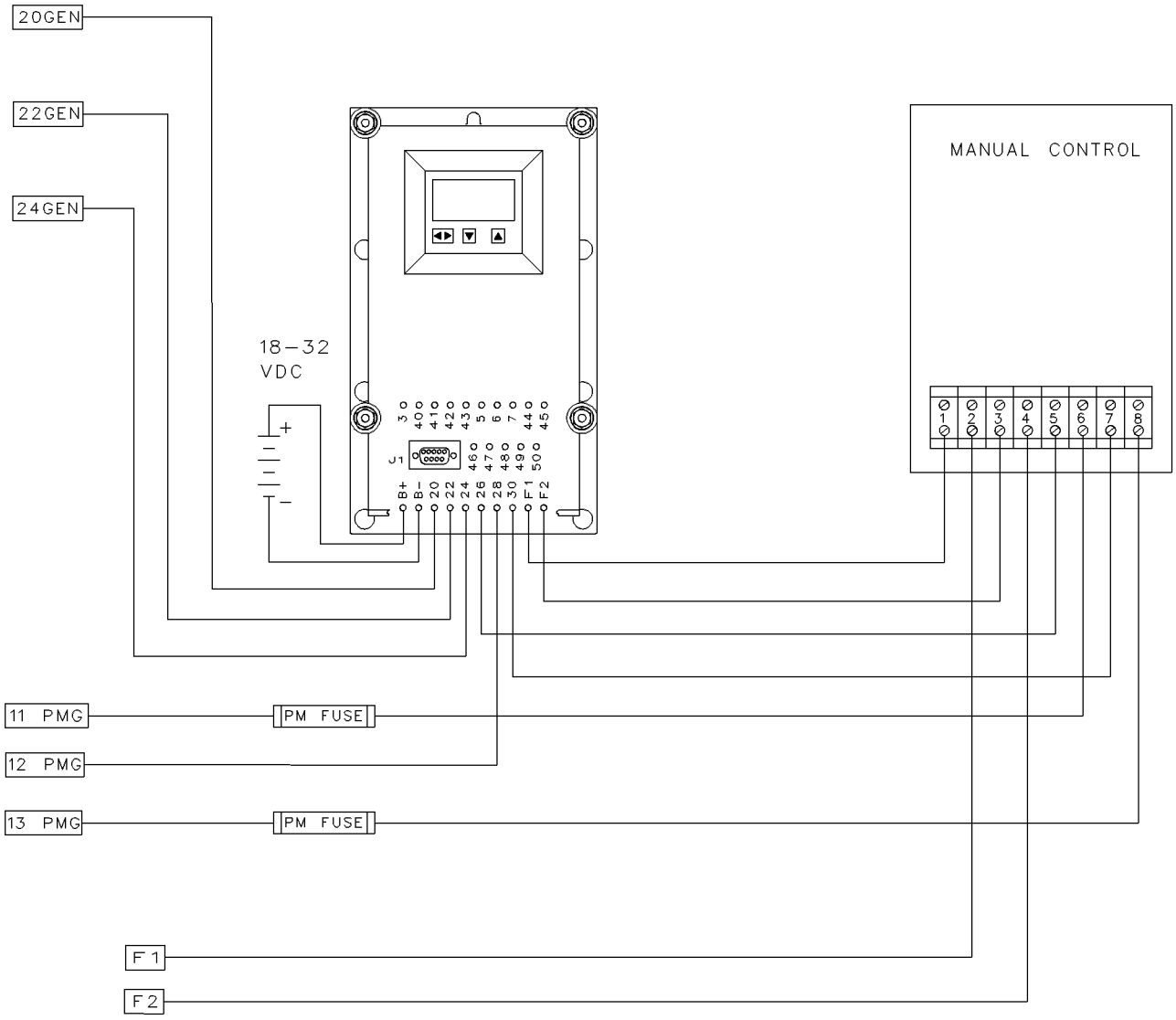
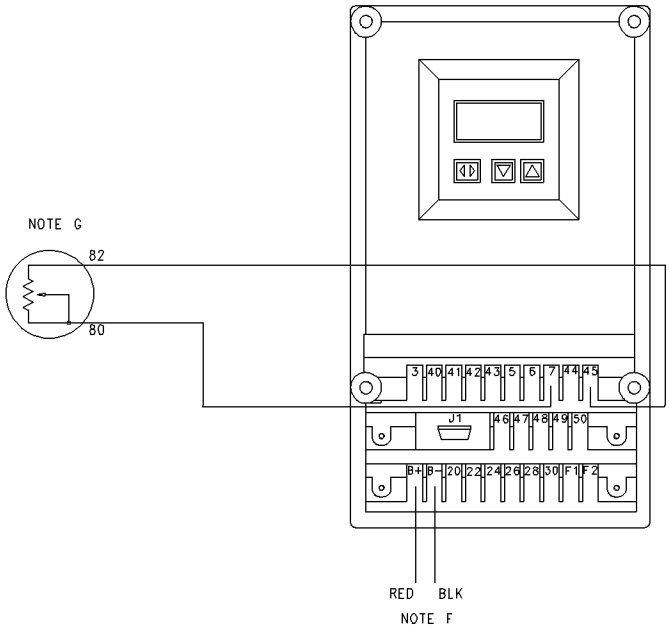


Illustration 35

g00539523

Digital Voltage Regulator with Remote Voltage Adjust Rheostat

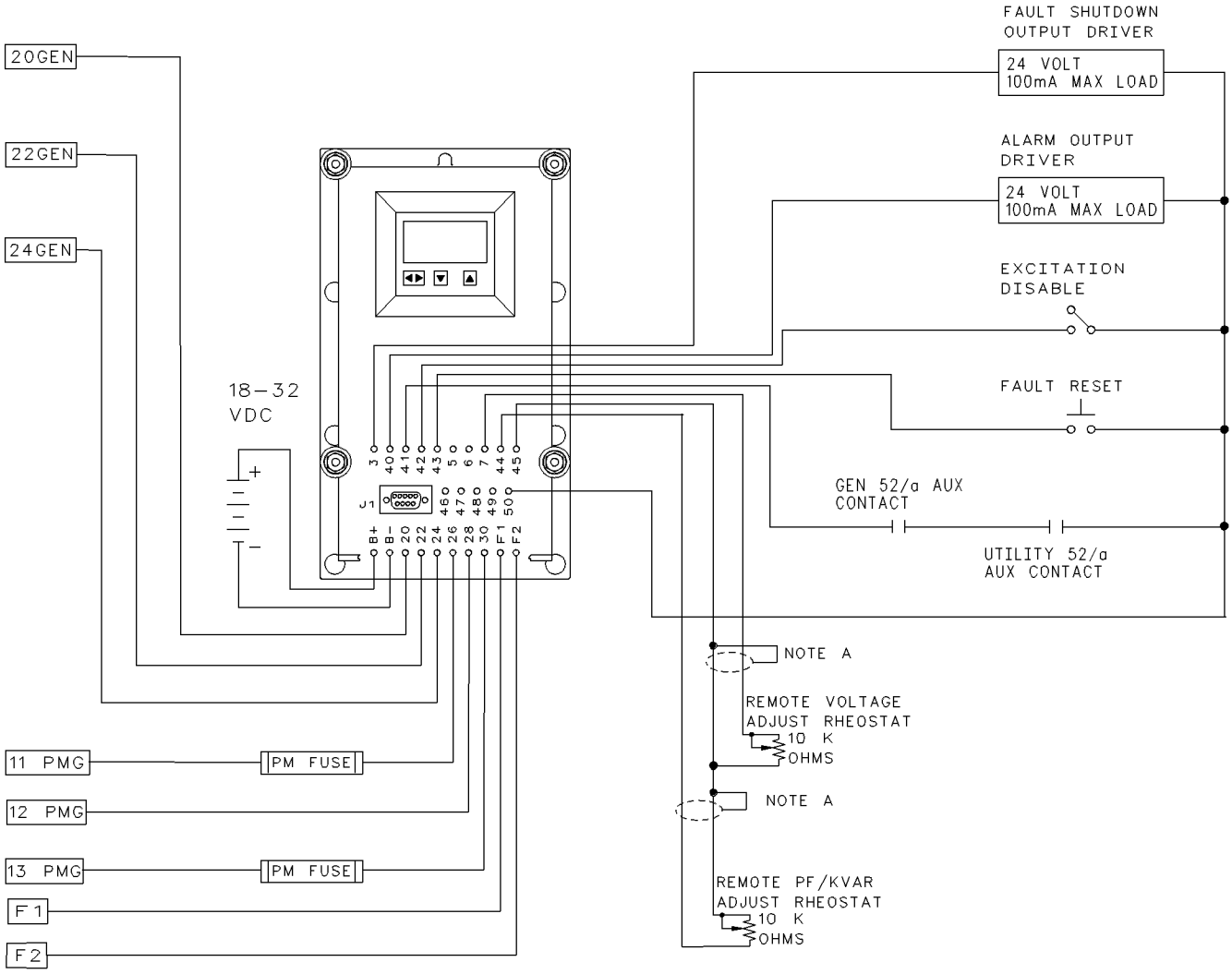


NOTE F: IF EMCP EXISTS, HARNESS AS. 128-0830 IS REQUIRED TO PROVIDE POWER. IF NO EMCP IS PRESENT, MATCH WIRE IDENTITIES USING P3FO-T152 FOR B+ AND P6FD-T102 FOR B- ON GAS ENGINES. DIESEL ENGINES USE 40KJKL198 FOR B+ AND 40LJKL199 FOR B-. IF NO EMCP AND NO WIRING HARNESS IS PROVIDED USE 130-3592 HARNESS FOR DIGITAL VOLTAGE REGULATOR BATTERY POWER.

NOTE G: OPTIONAL REMOTE VOLTAGE ADJUST RHEOSTAT IS LOCATED IN THE CONTROL PANEL, IF PROVIDED.

Illustration 36 g00695943

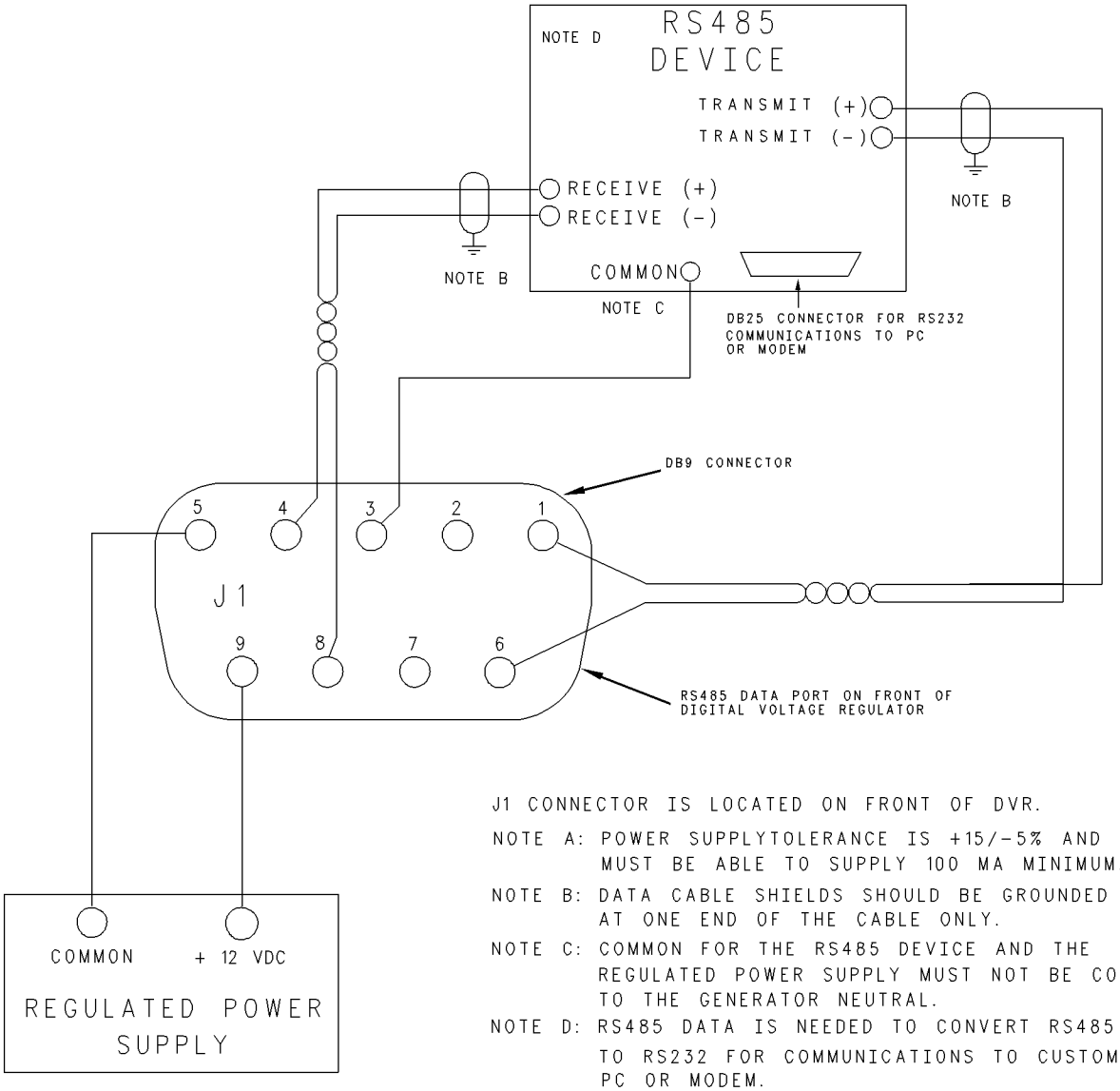
Digital Voltage Regulator Customer Options



NOTE A: CONNECT SHIELD DRAIN WIRE(S) TO TERMINAL 45. INSULATE SHIELD DRAIN WIRE(S) AT RHEOSTAT END. DO NOT CONNECT SHIELD DRAIN WIRE(S) TO CHASSIS GROUND.

Illustration 37 g00539524

Digital Voltage Regulator Remote Communications Connections



J1 CONNECTOR IS LOCATED ON FRONT OF DVR.

NOTE A: POWER SUPPLYTOLERANCE IS +15/-5% AND MUST BE ABLE TO SUPPLY 100 MA MINIMUM.

NOTE B: DATA CABLE SHIELDS SHOULD BE GROUNDED AT ONE END OF THE CABLE ONLY.

NOTE C: COMMON FOR THE RS485 DEVICE AND THE REGULATED POWER SUPPLY MUST NOT BE CONNECTED TO THE GENERATOR NEUTRAL.

NOTE D: RS485 DATA IS NEEDED TO CONVERT RS485 DATA TO RS232 FOR COMMUNICATIONS TO CUSTOMER PC OR MODEM.

Illustration 38 g00697822

i01320364

Oil Field Generator Connections (SR4)

SMCS Code: 4450

Excitor Field Connection (Series or Parallel) and Voltage Sensing Leads

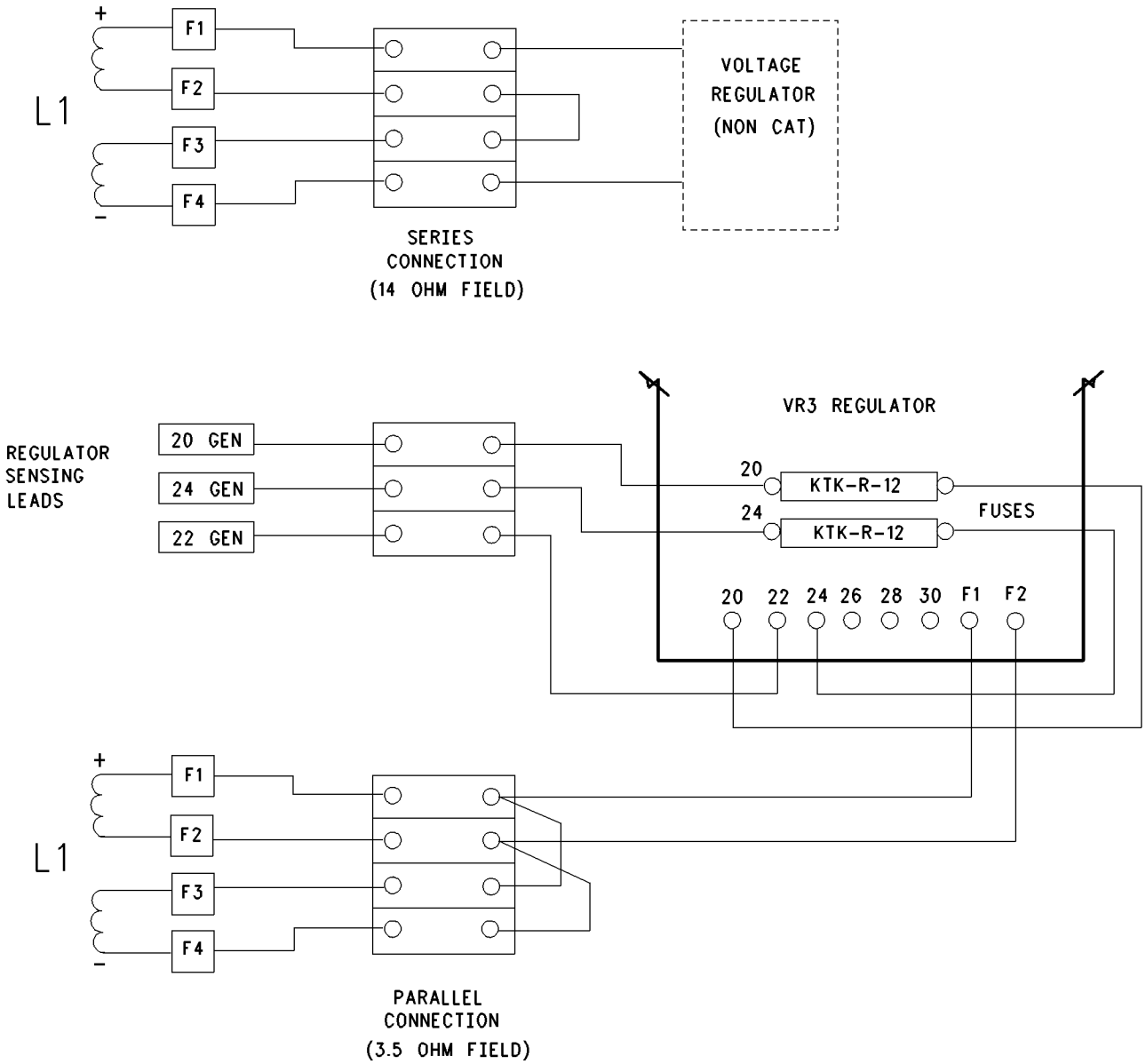


Illustration 39 g00702215

SR4B Generators for 3500 Engines

i01318012

General Information (SR4B for 3500 Engines)

SMCS Code: 4450

Introduction

The Diagrams that follow apply to the SR4B Generators used with 3500 Engines.

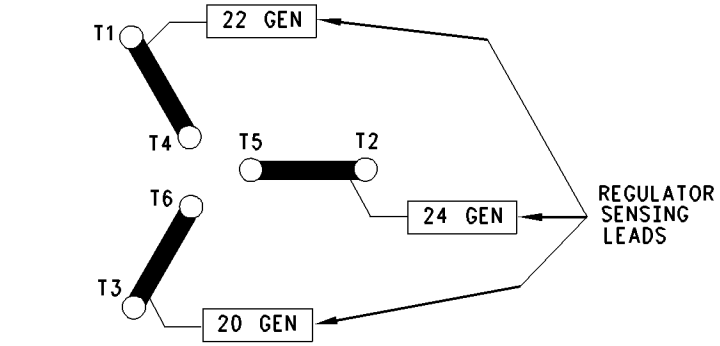
Note: Diagrams for the SR4 and other SR4B Generators appear at the beginning of this manual.

i01320334

Main Stator and Voltage Sensing Lead Connections (SR4B for 3500 Engines)

SMCS Code: 4453

6 Lead Wye Connection

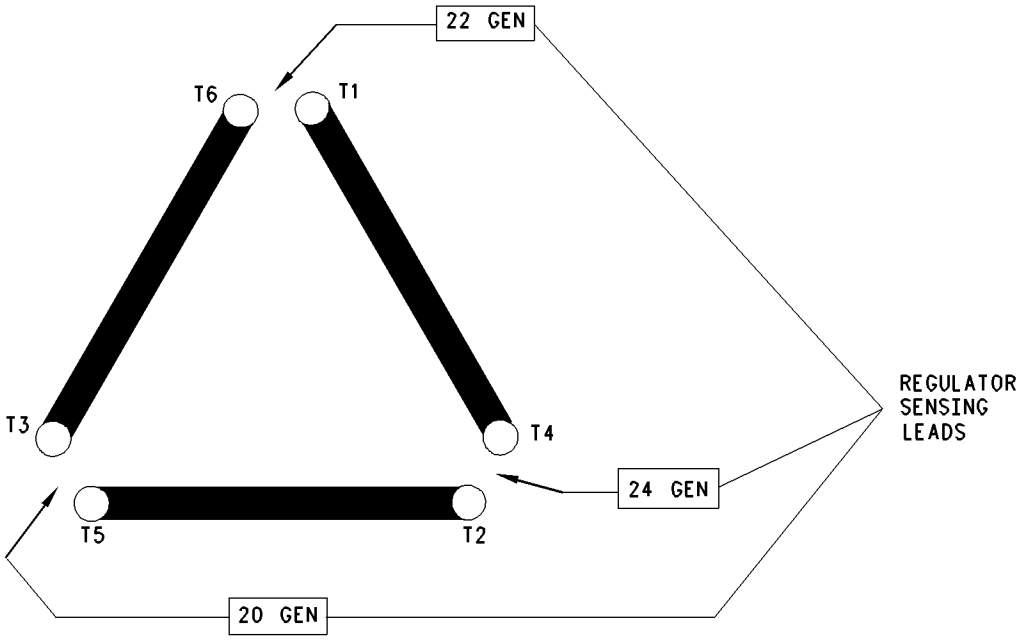


WYE CONNECTION

L1	L2	L3	N
U	V	W	
T1	T2	T3	(T4, T5, T6)

Illustration 40 g00702224

6 Lead Delta Connection



DELTA CONNECTION			REGULATOR SENSING		
L1	L2	L3			
U	V	W	20	22	24
(T1, T6)	(T2, T4)	(T3, T5)	T3	T1	T2

Illustration 41

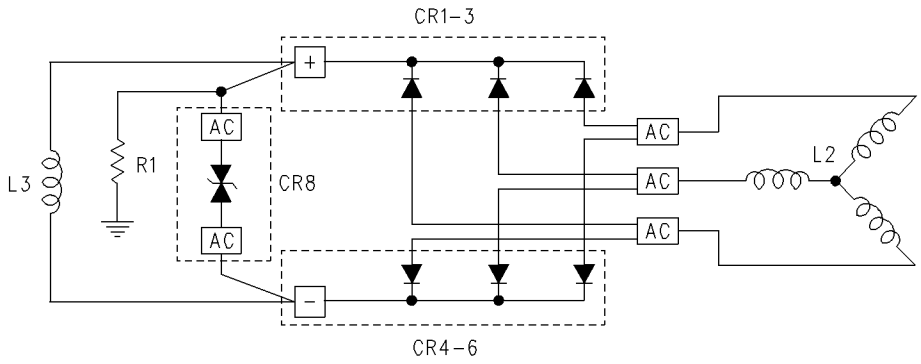
g00702225

i01314709

Main Revolving Field Connections (SR4B for 3500 Engines)

SMCS Code: 4457

Two Diode Blocks and Surge Suppressor



L2 EXITER ARMATURE
L3 REVOLVING FIELD
R1 STATIC DISCHARGE RESISTOR

CR1-6 RECTIFIERS
CR8 SURGE SUPPRESSOR

Illustration 42 g00695807

i01327215

Selection Guide for Voltage Regulator (SR4B for 3500 Engines)

SMCS Code: 4467

Selection Chart for SR4B Voltage Regulator

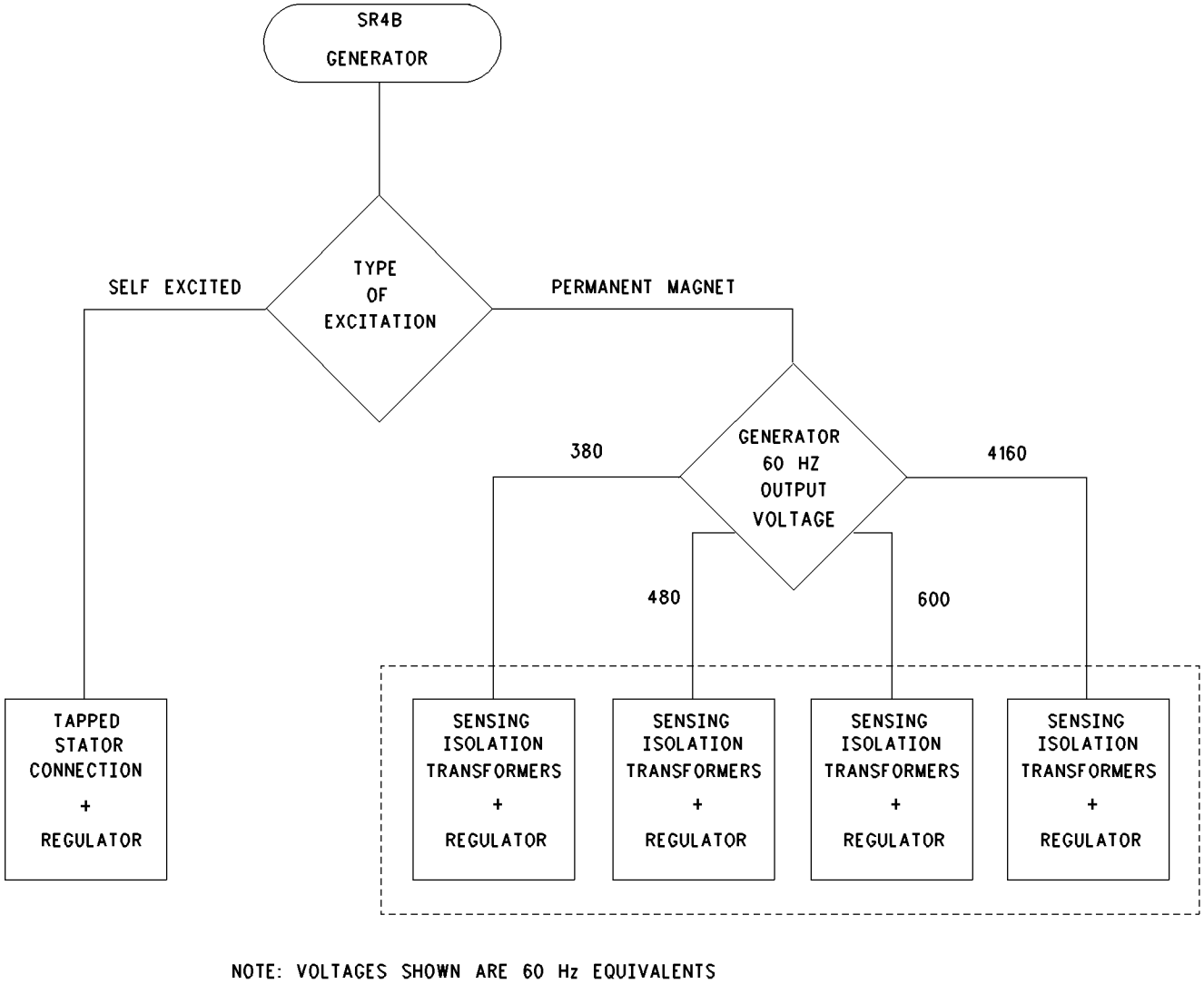


Illustration 43 g00702273

i01314726

VR3 Voltage Regulator Connections (SR4B for 3500 Engines)

SMCS Code: 4467

Self Excited with Direct Connection to Generator

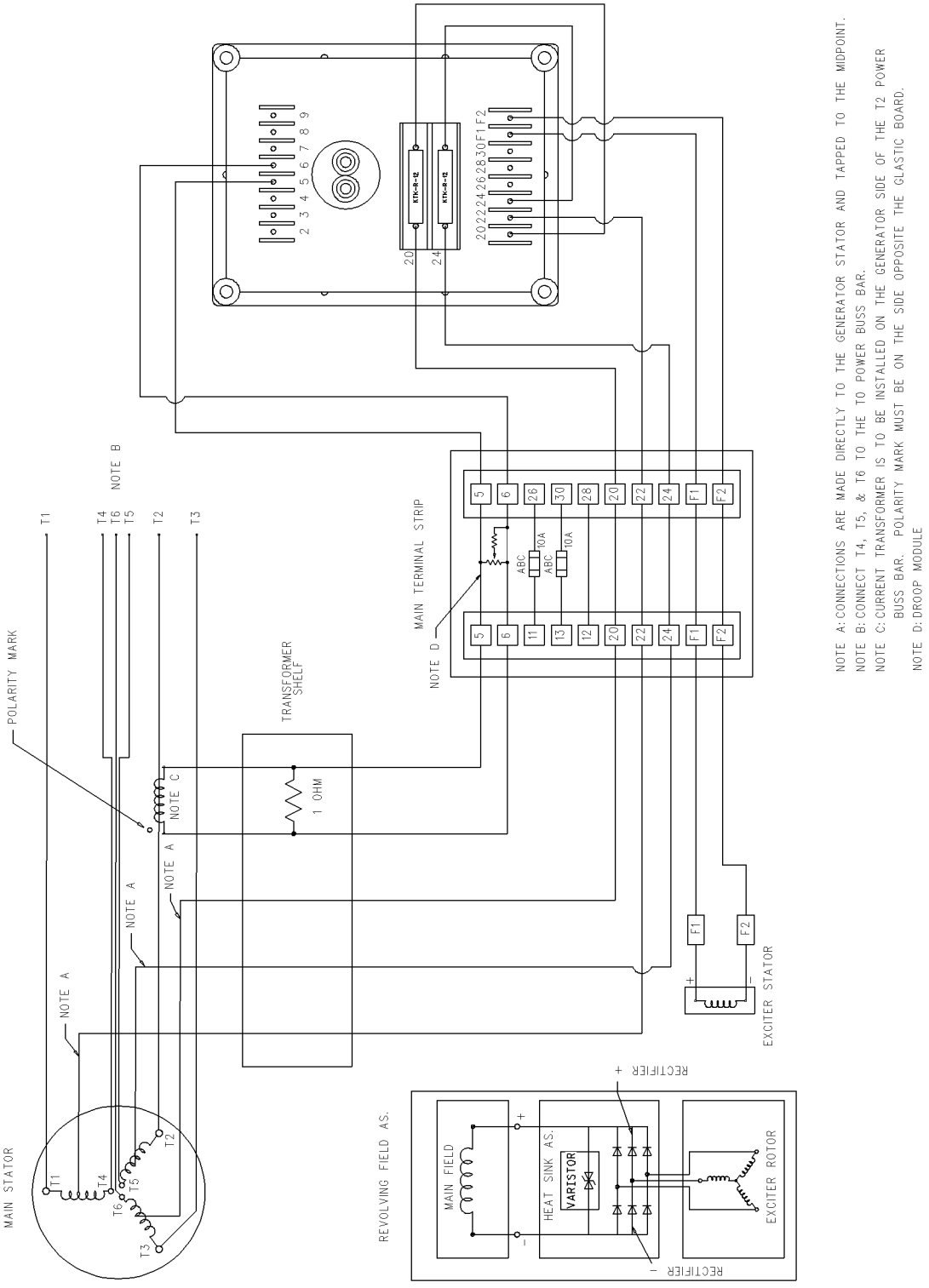


Illustration 44 g00695965

Permanent Magnet Excitation with Connections to an Isolation Transformer

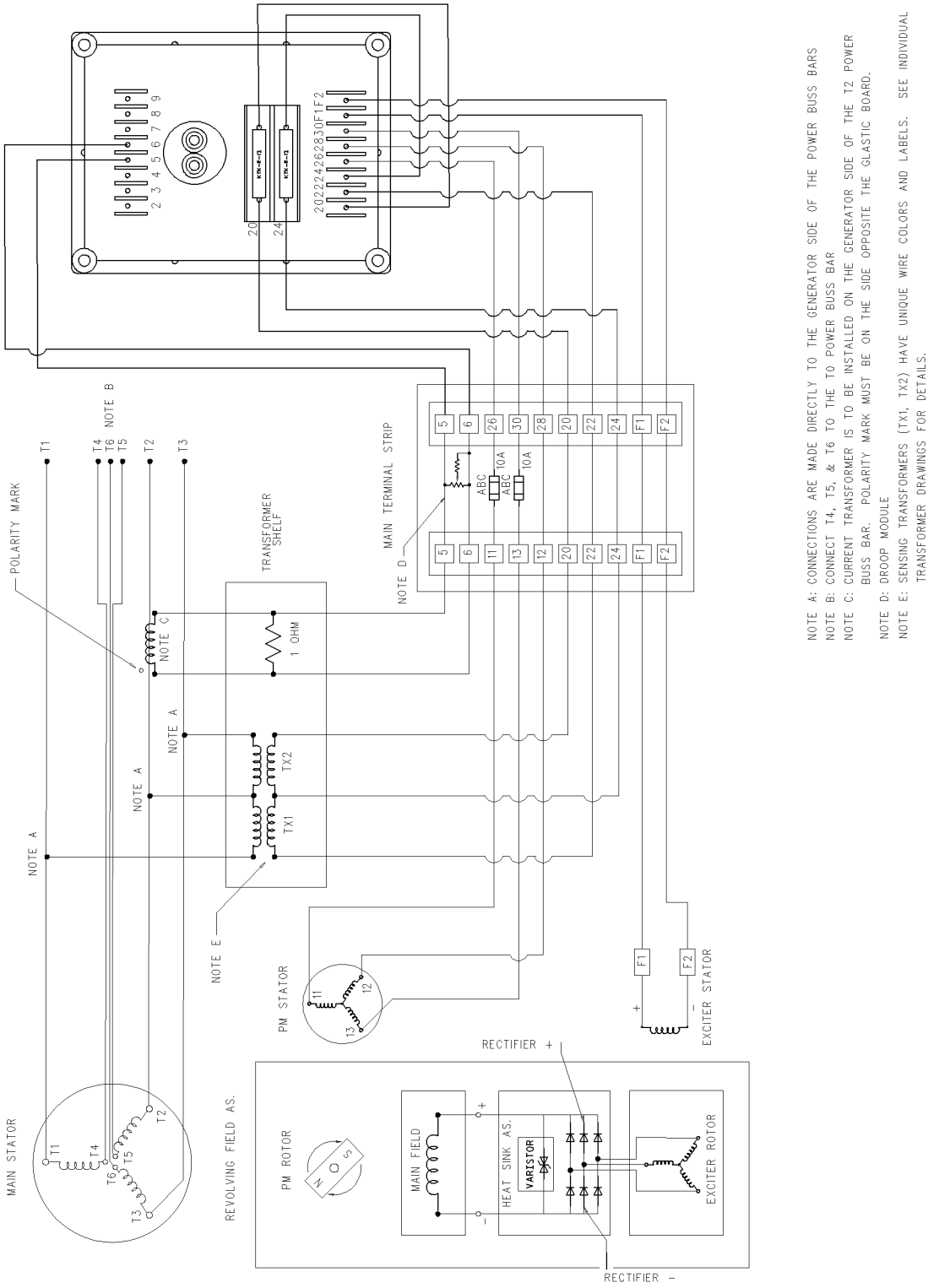


Illustration 45

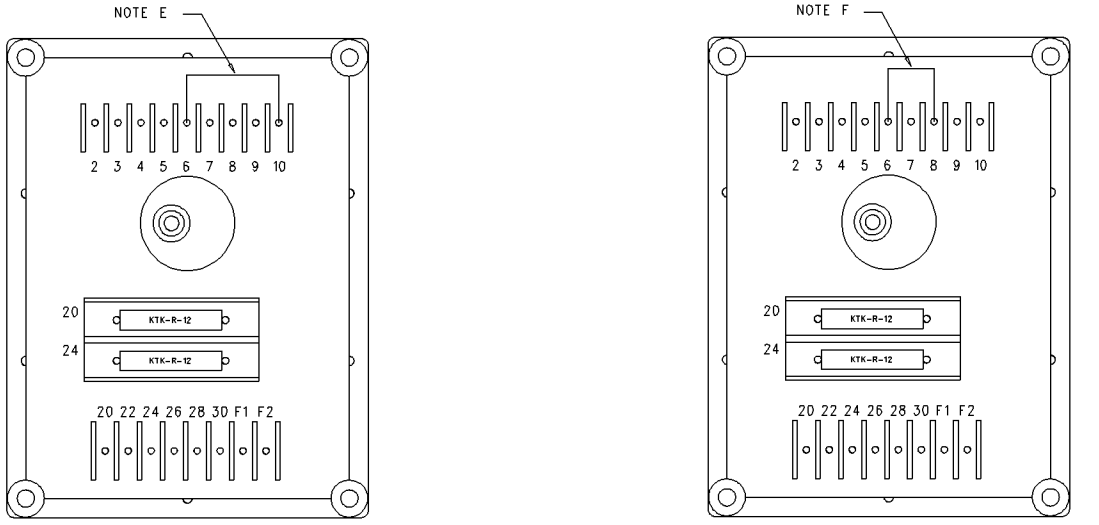
g00695969

i01314367

VR3F Voltage Regulator Connections (SR4B for 3500 Engines)

SMCS Code: 4467

Knee Frequency Selection and Underfrequency Slope Selection



NOTE E: INSTALL JUMPER FOR 60 HZ OPERATION; REMOVE FOR 50 HZ OPERATION.

NOTE F: INSTALL JUMPER FOR 1:1 V/HZ SLOPE; REMOVE FOR 2:1 V/HZ UNDERFREQUENCY SLOPE.

Illustration 46 g00695812

Self Excited with Direct Connection to Generator

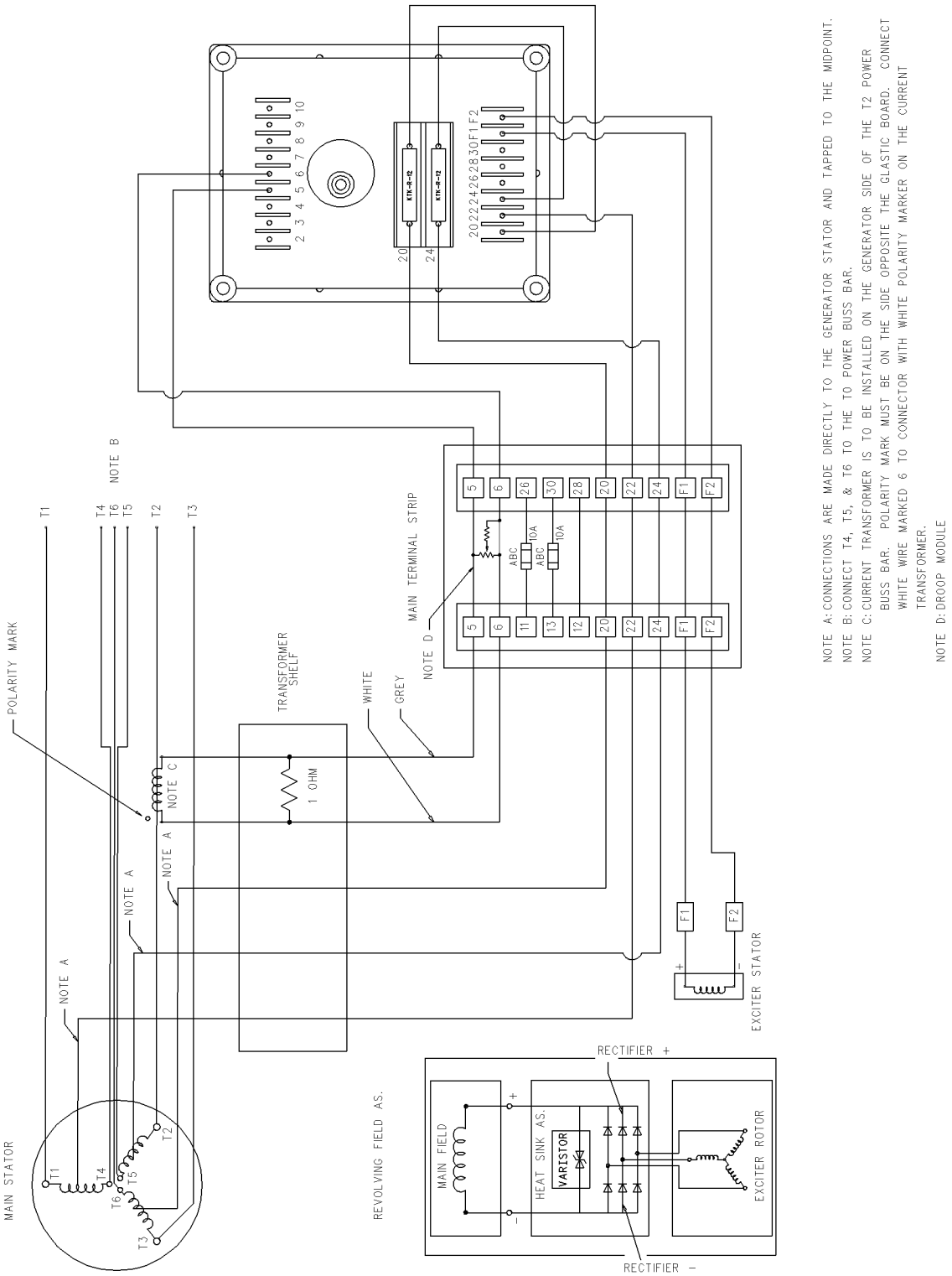


Illustration 47

g00695977

Permanent Magnet Excitation with Connections to Isolation Transformers

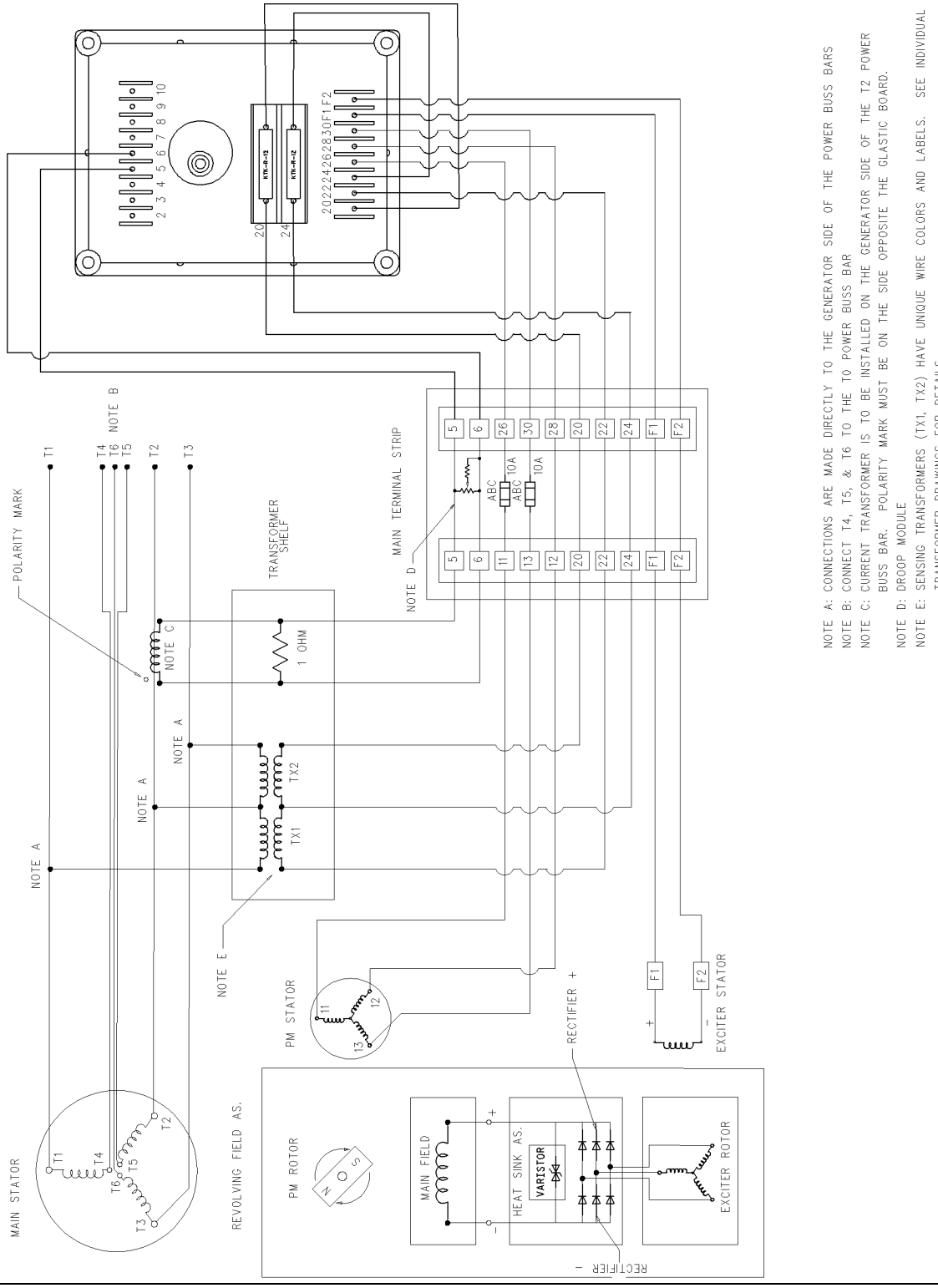


Illustration 48

g00695982

i01314775

Digital Voltage Regulator Connections (SR4B for 3500 Engines)

SMCS Code: 4467

Permanent Magnet Excitation with Connections to Isolation Transformers

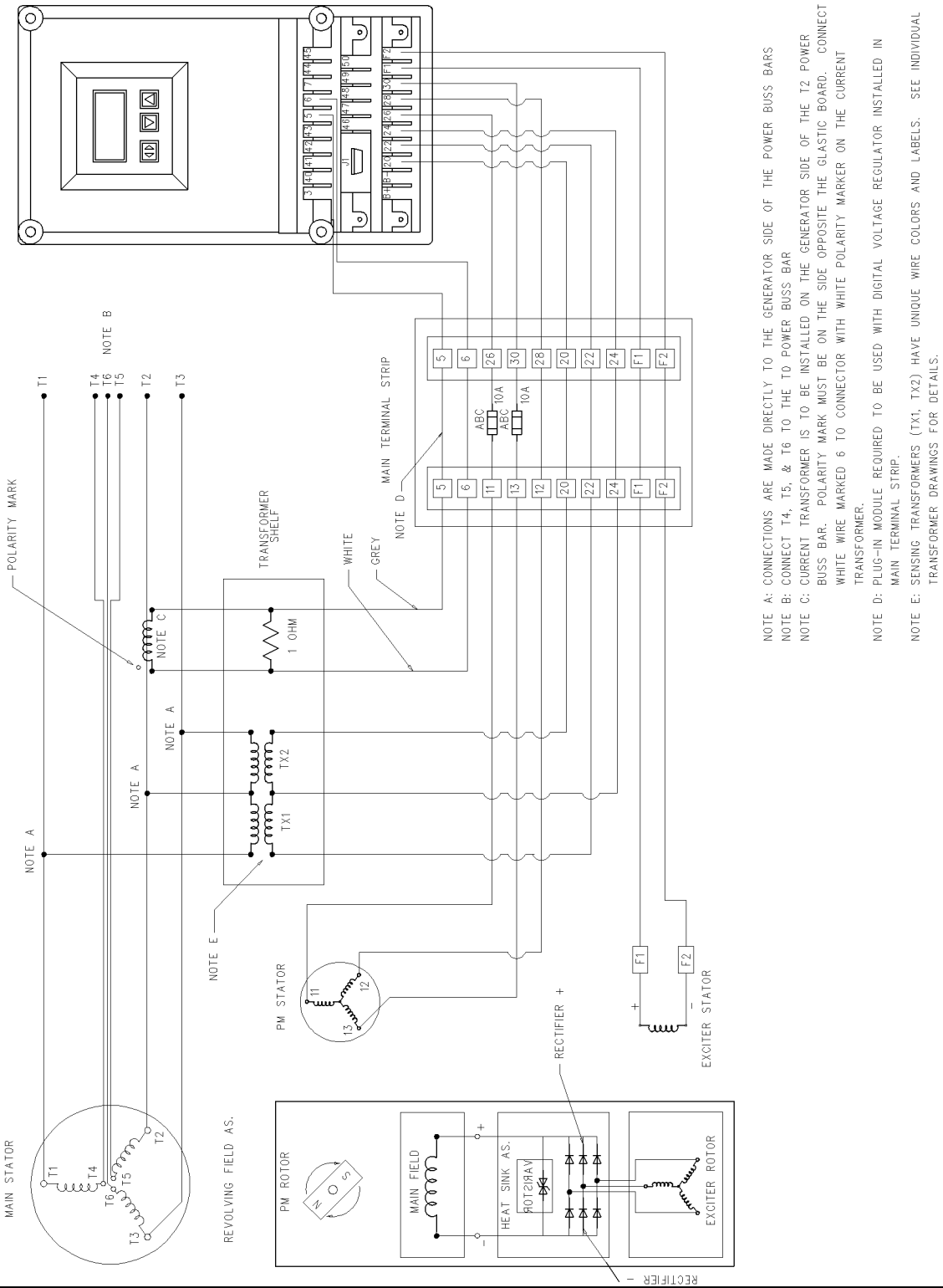


Illustration 49 g00695987

i01314806

Options (SR4B for 3500 Engines)

SMCS Code: 4450

VR3 with Manual Voltage Control and Self Excitation

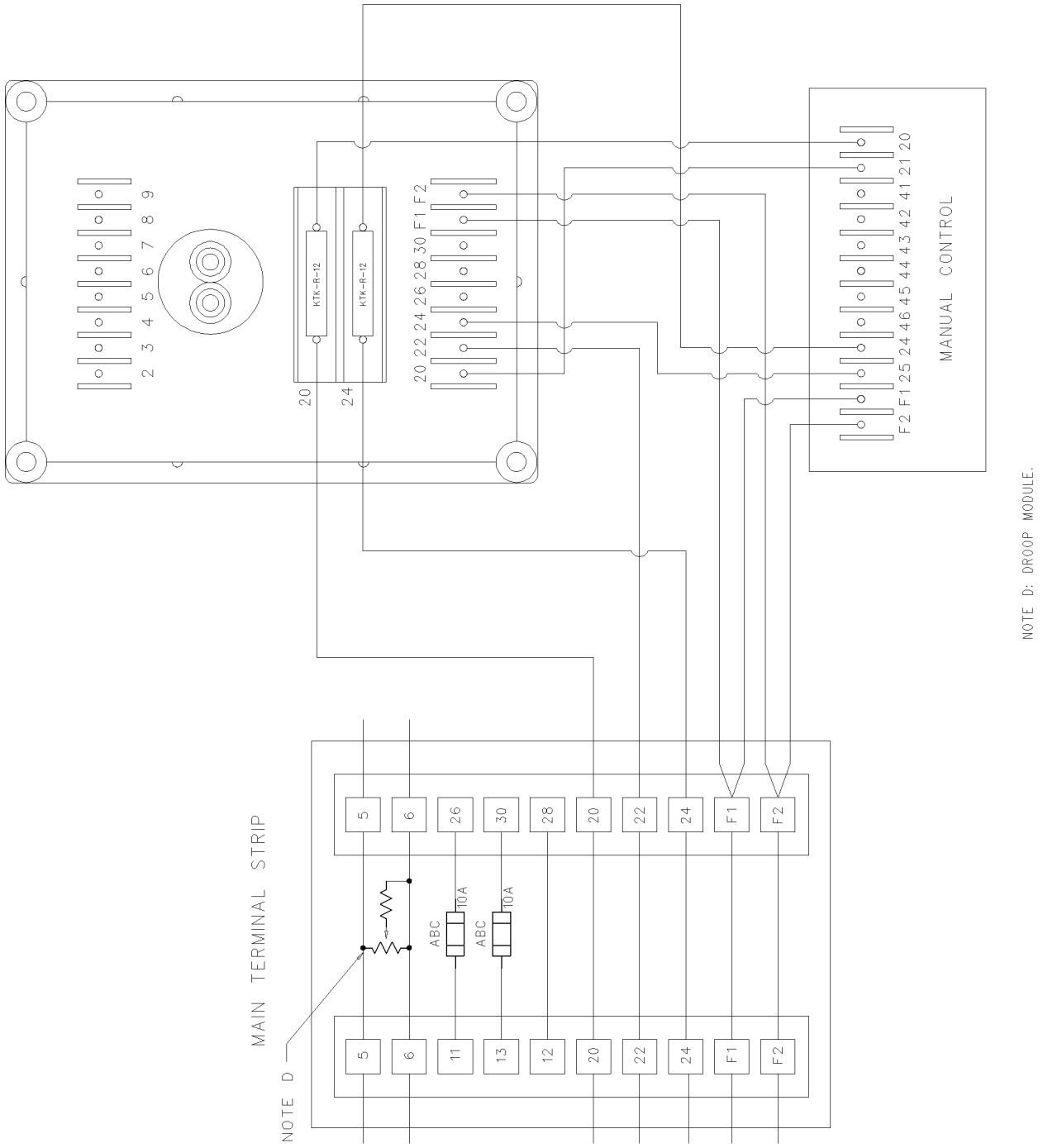


Illustration 50 g00695990

VR3 Manual Control with Permanent Magnet Excitation

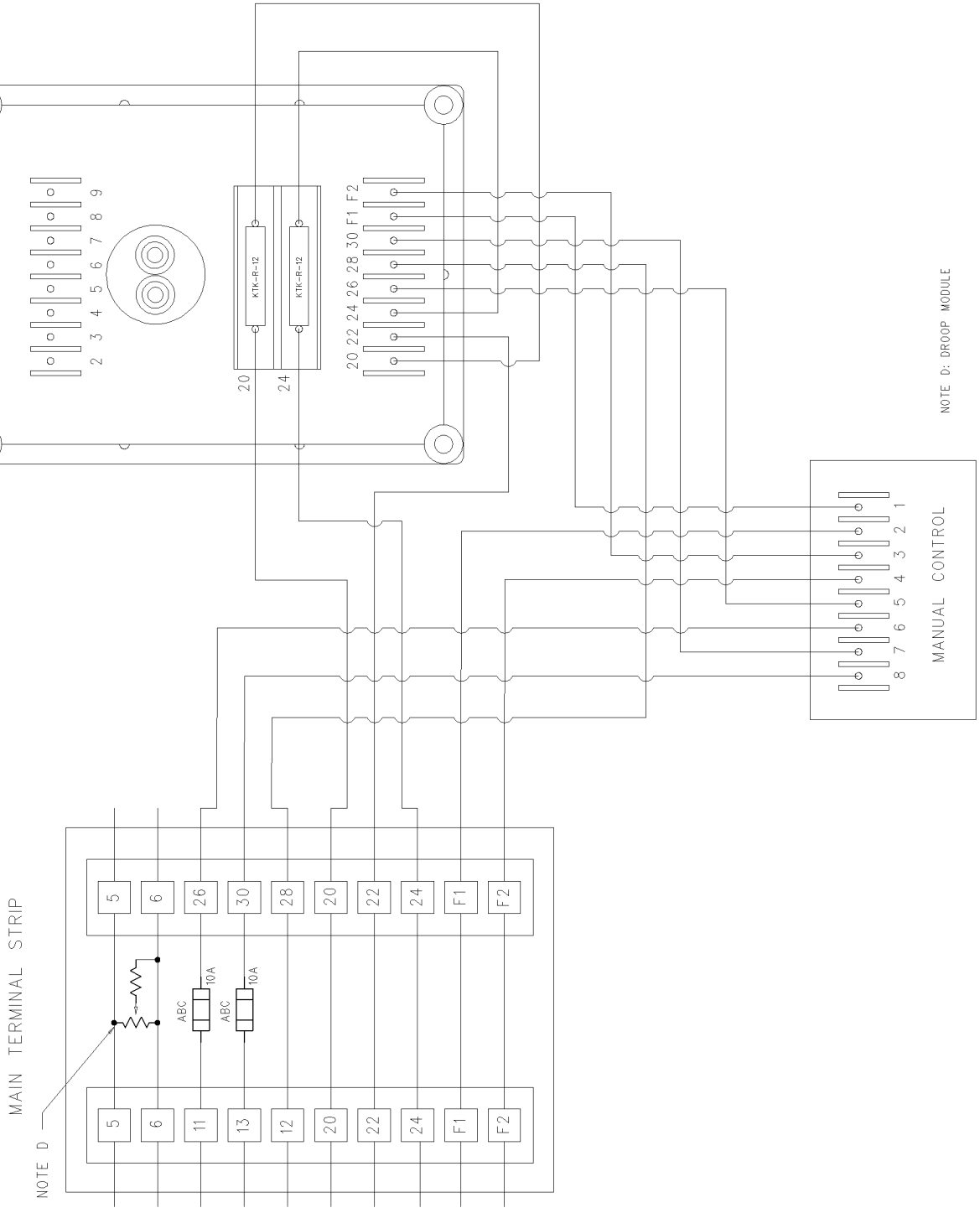


Illustration 51

g00695991

VR3 with Radio Interference Filter with Self Excitation

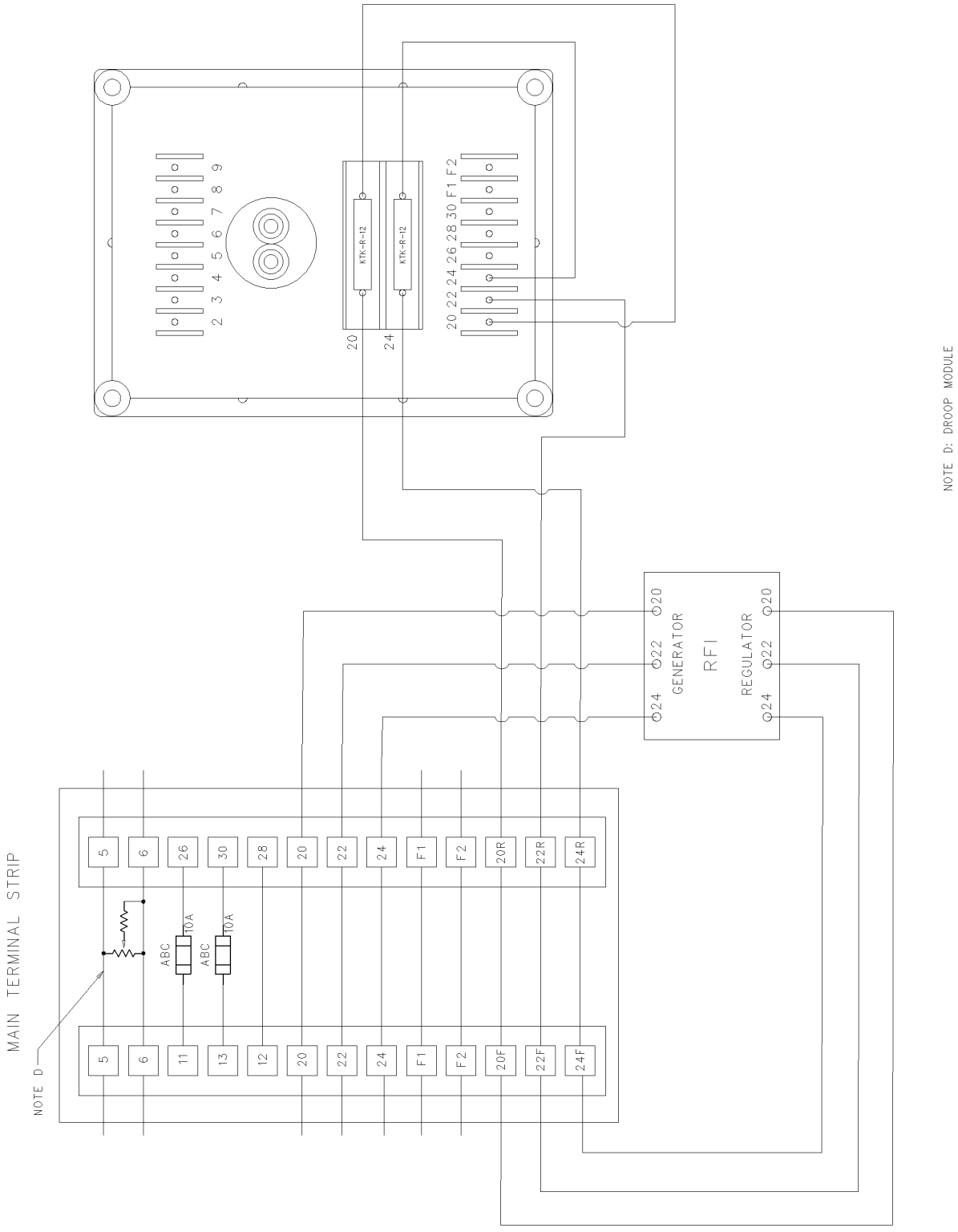


Illustration 52

g00695992

VR3 with Radio Interference and Permanent Magnet Excitation

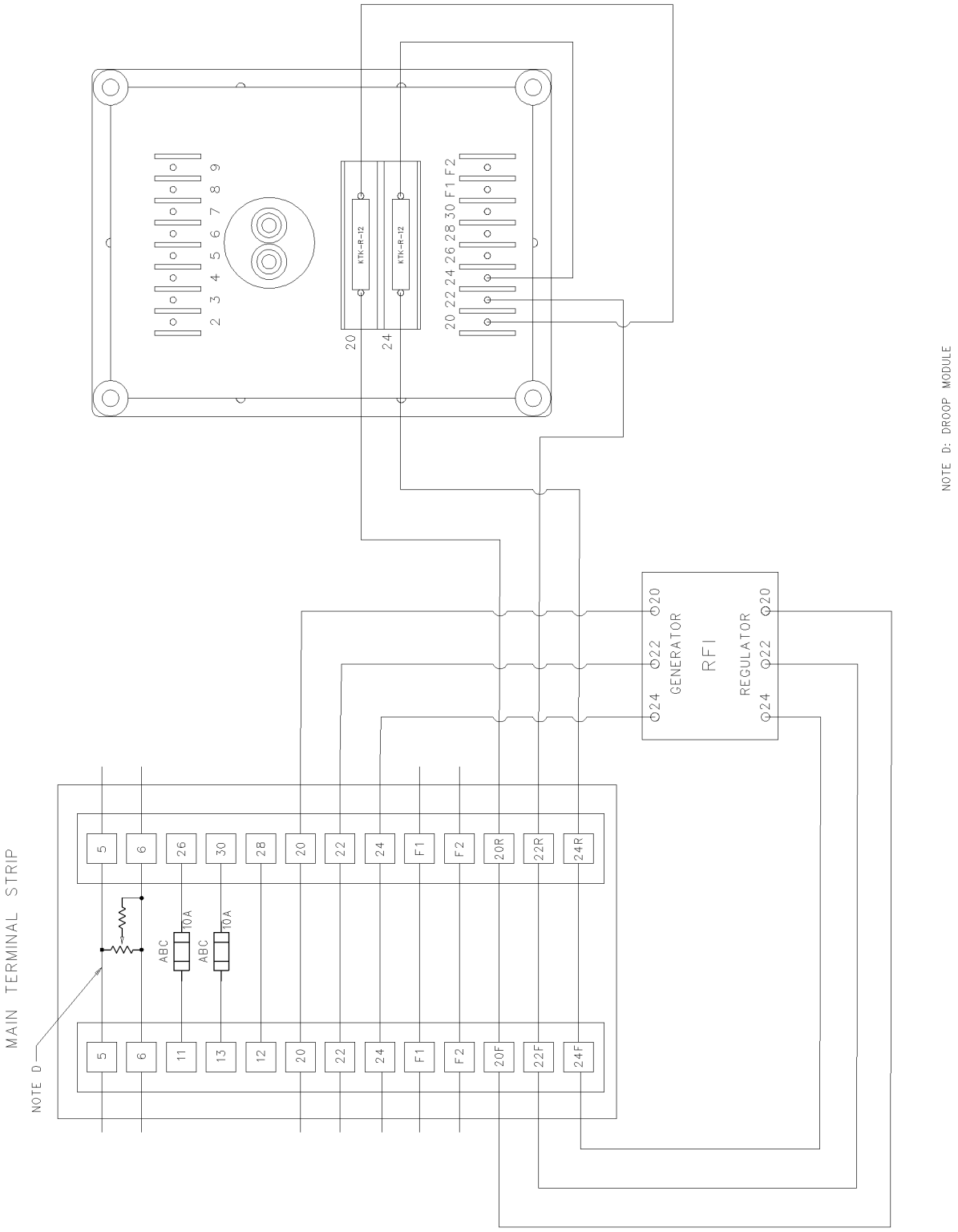
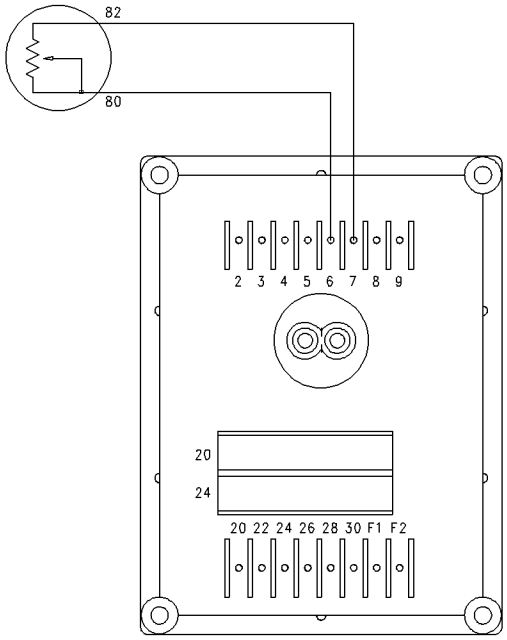


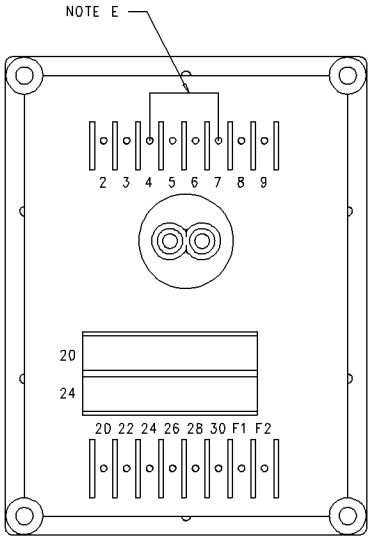
Illustration 53

g00695996

Remote Voltage Adjust Rheostat Connections



CONNECTION WHEN REMOTE VOLTAGE ADJUST RHEOSTAT IS PROVIDED



CONNECTION WITH NO REMOTE VOLTAGE ADJUST RHEOSTAT

NOTE E: JUMPER MUST BE INSTALLED IF REMOTE VOLTAGE ADJUST RHEOSTAT IS NOT PROVIDED.

Illustration 54

g00695920

VR3F with Manual Voltage Control and Self Excitation

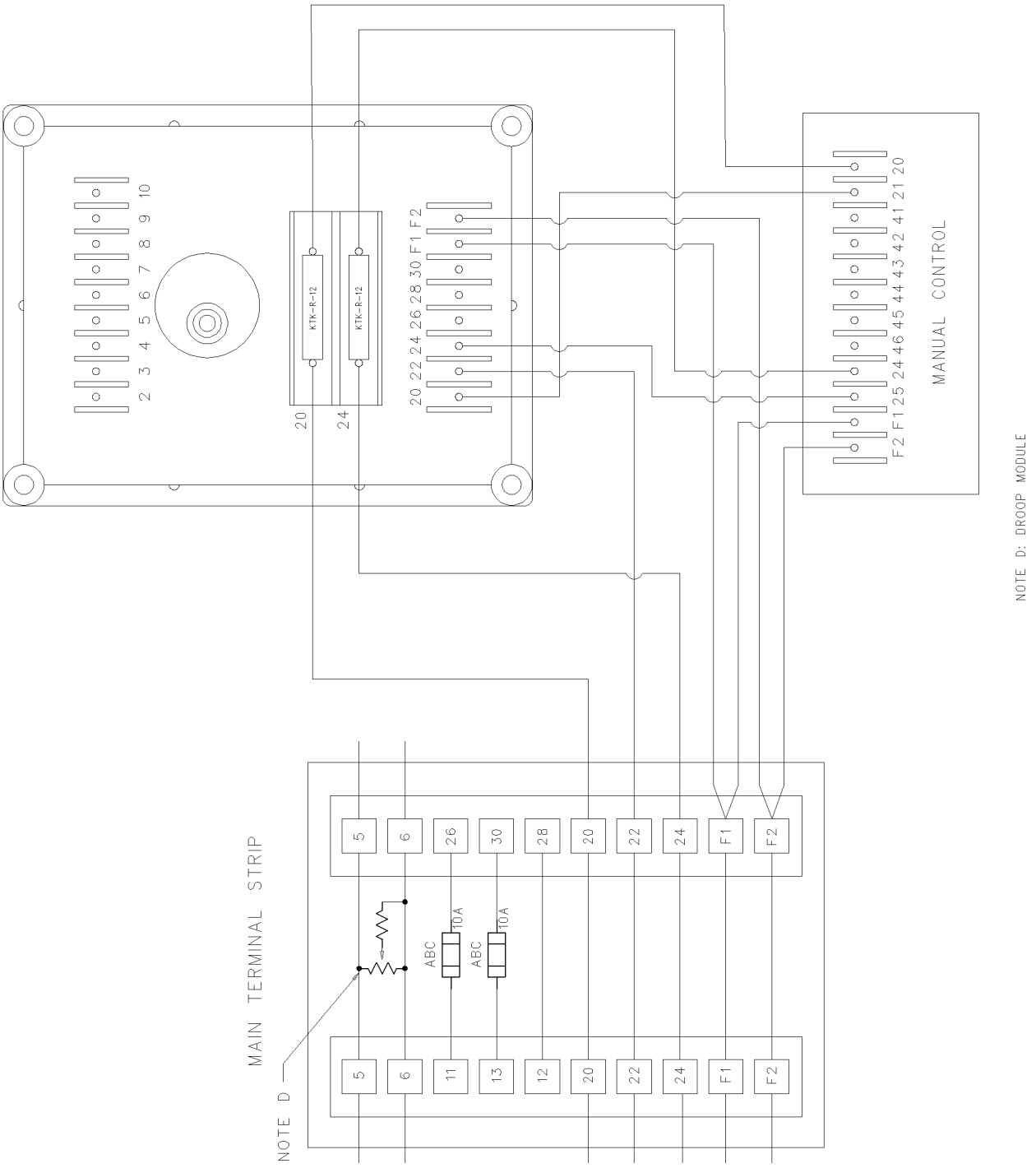


Illustration 55

g00695997

VR3F with Manual Control and Permanent Magnet Excitation

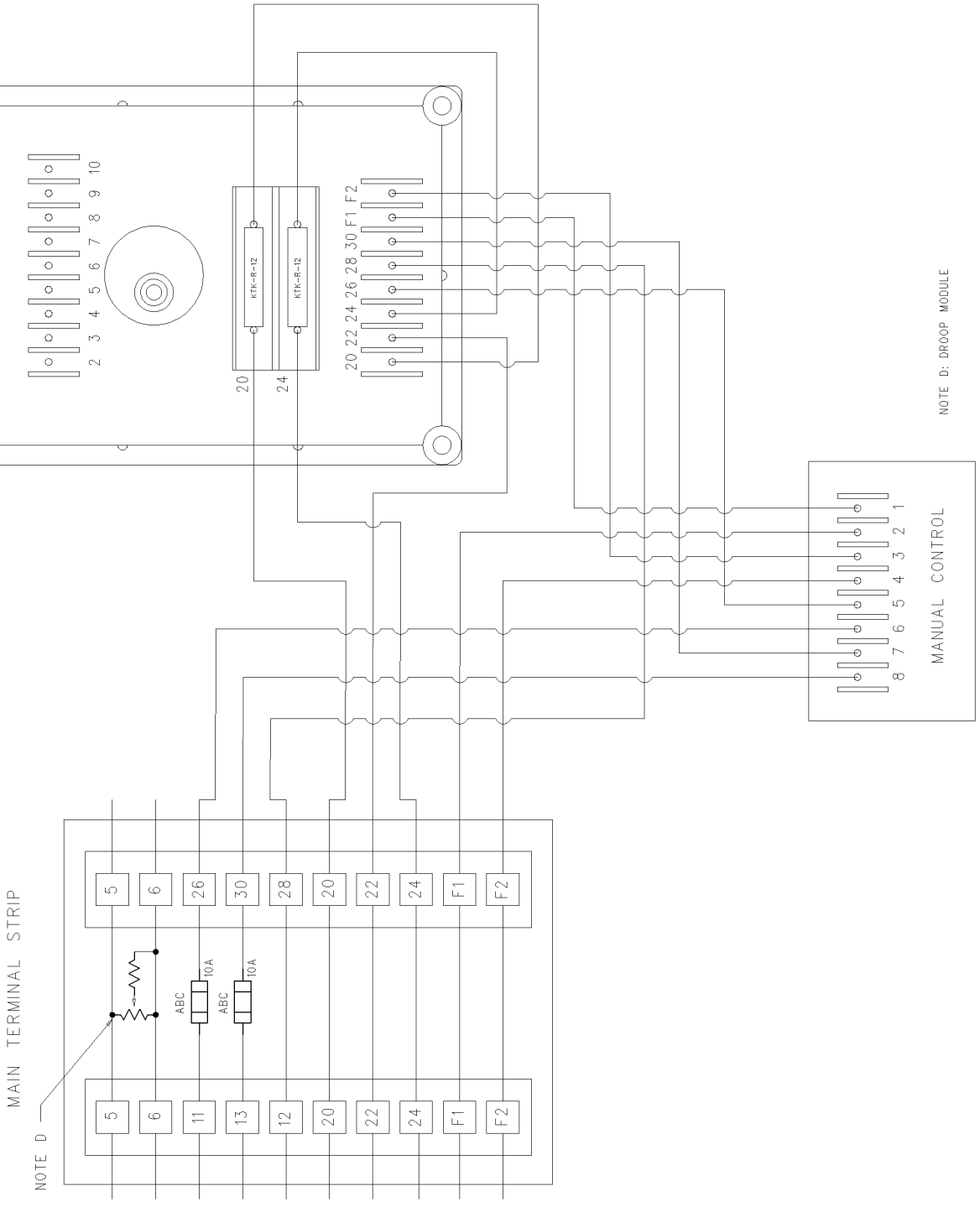


Illustration 56 g00695998

VR3F with Radio Interference Filter and Self Excitation

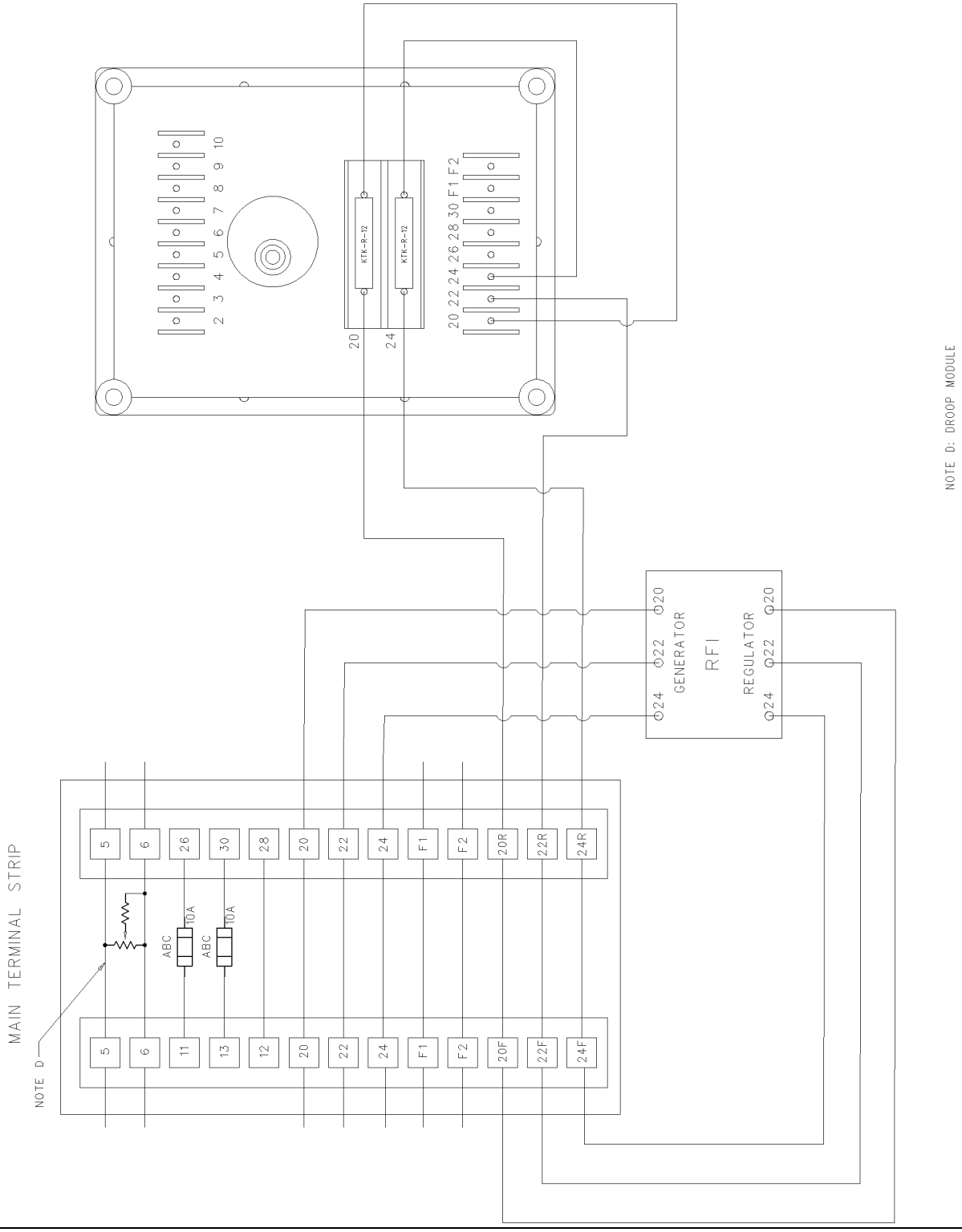


Illustration 57

g00695999

VR3F with Radio Interference Filter and Permanent Magnet Excitation

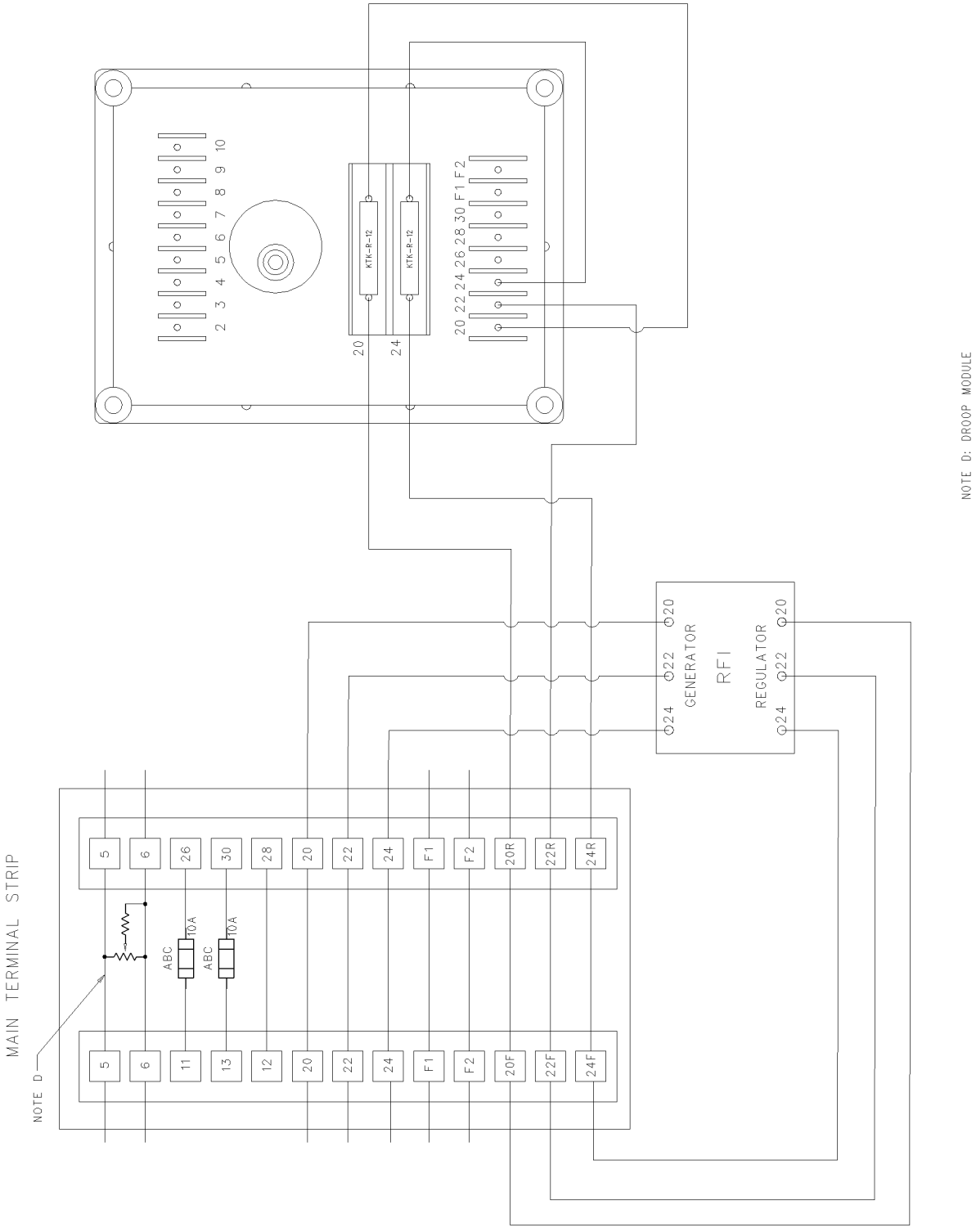


Illustration 58

g00696000

Digital Voltage Regulator with Manual Control

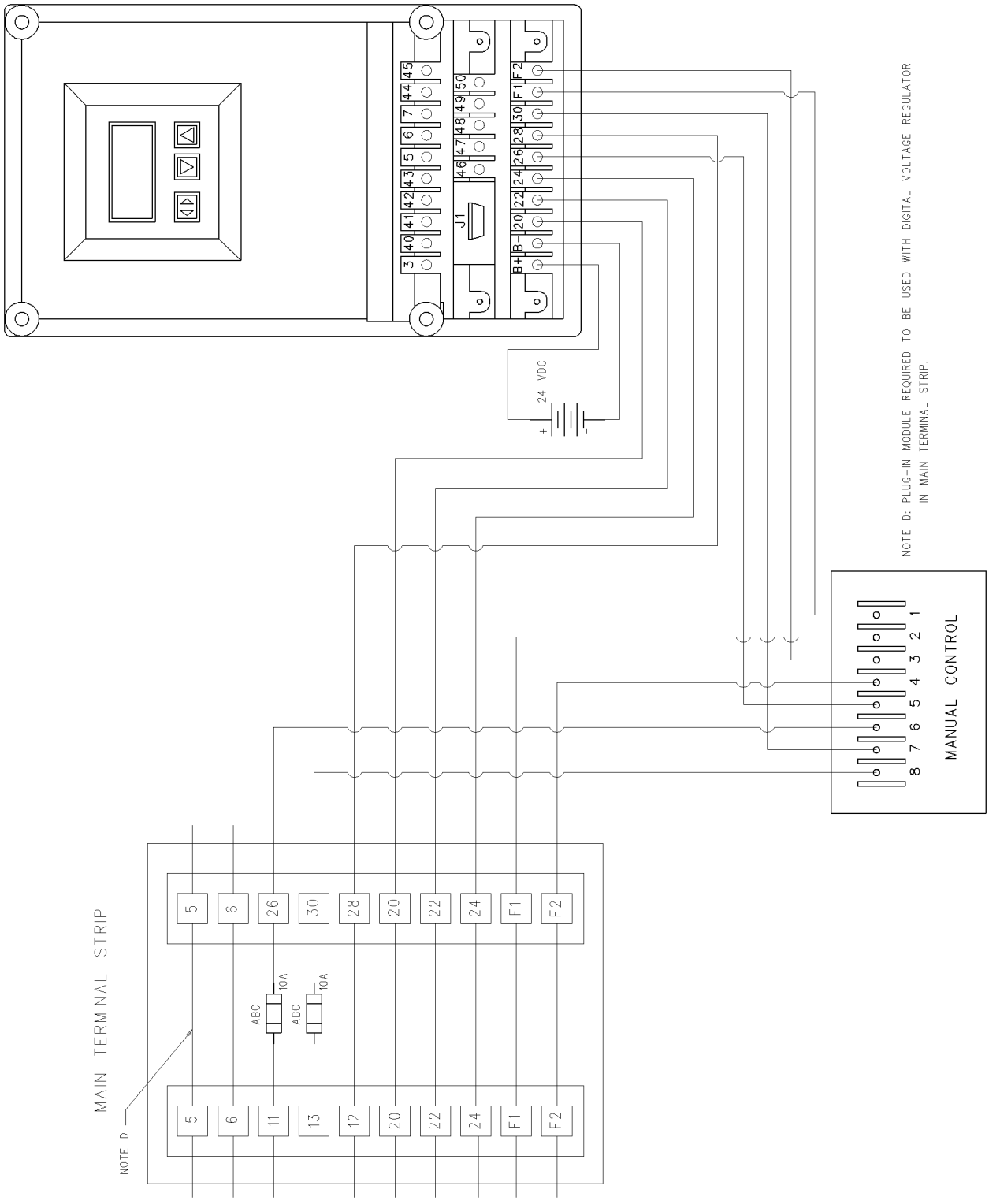
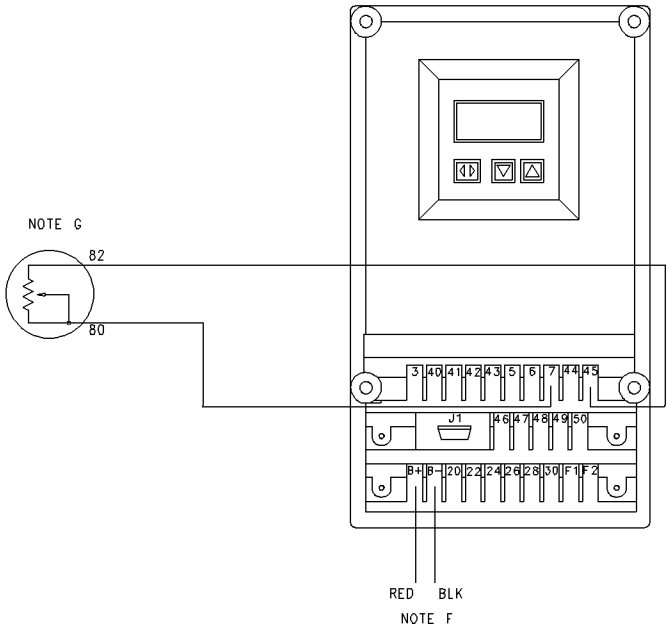


Illustration 59

g00696003

Digital Voltage Regulator with Remote VAR

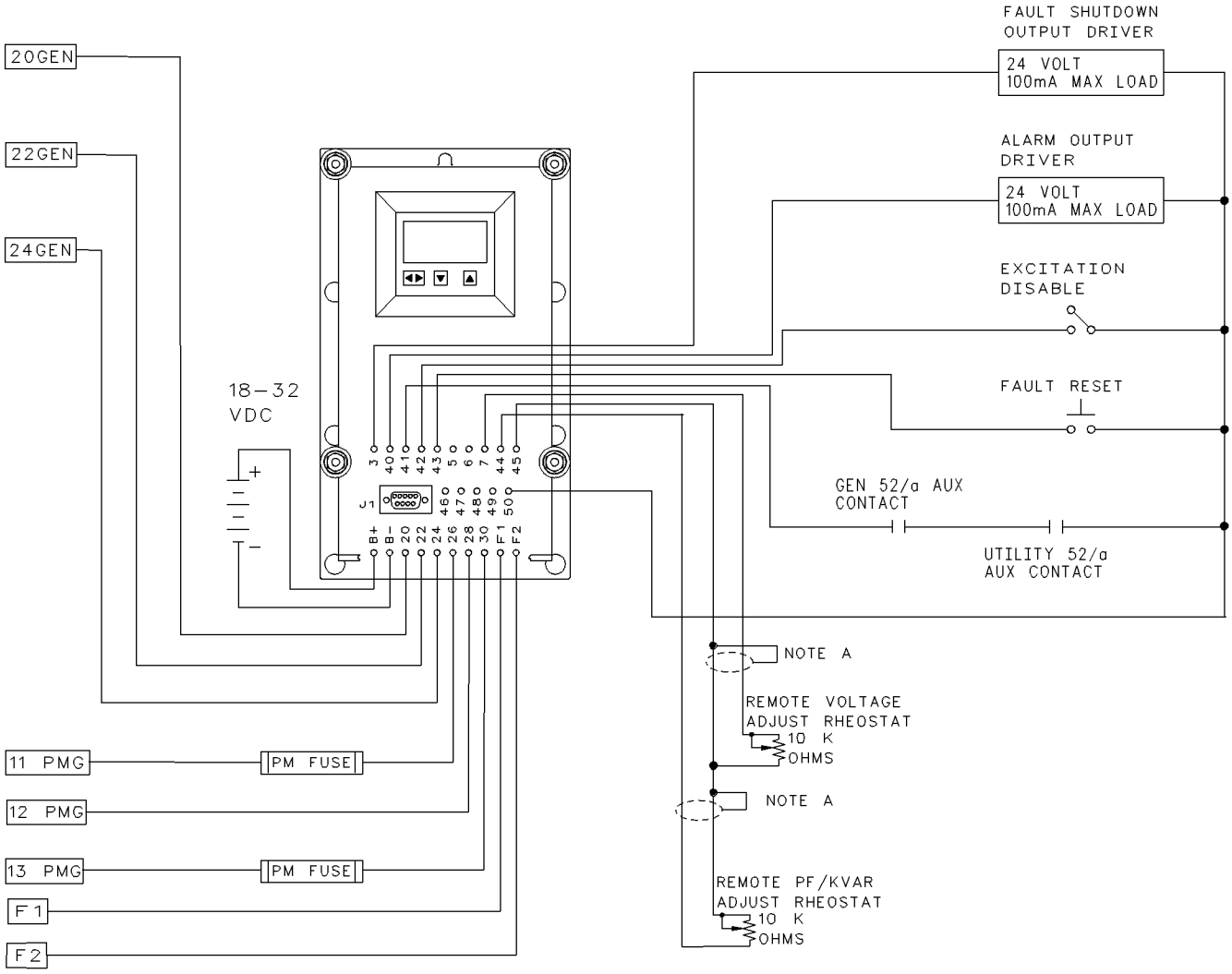


NOTE F: IF EMCP EXISTS, HARNESS AS. 128-0830 IS REQUIRED TO PROVIDE POWER. IF NO EMCP IS PRESENT, MATCH WIRE IDENTITIES USING P3FO-T152 FOR B+ AND P6FD-T102 FOR B- ON GAS ENGINES. DIESEL ENGINES USE 40KJKL198 FOR B+ AND 40LJKL199 FOR B-. IF NO EMCP AND NO WIRING HARNESS IS PROVIDED USE 130-3592 HARNESS FOR DIGITAL VOLTAGE REGULATOR BATTERY POWER.

NOTE G: OPTIONAL REMOTE VOLTAGE ADJUST RHEOSTAT IS LOCATED IN THE CONTROL PANEL, IF PROVIDED.

Illustration 60 g00695943

Digital voltage Regulator Customer Options

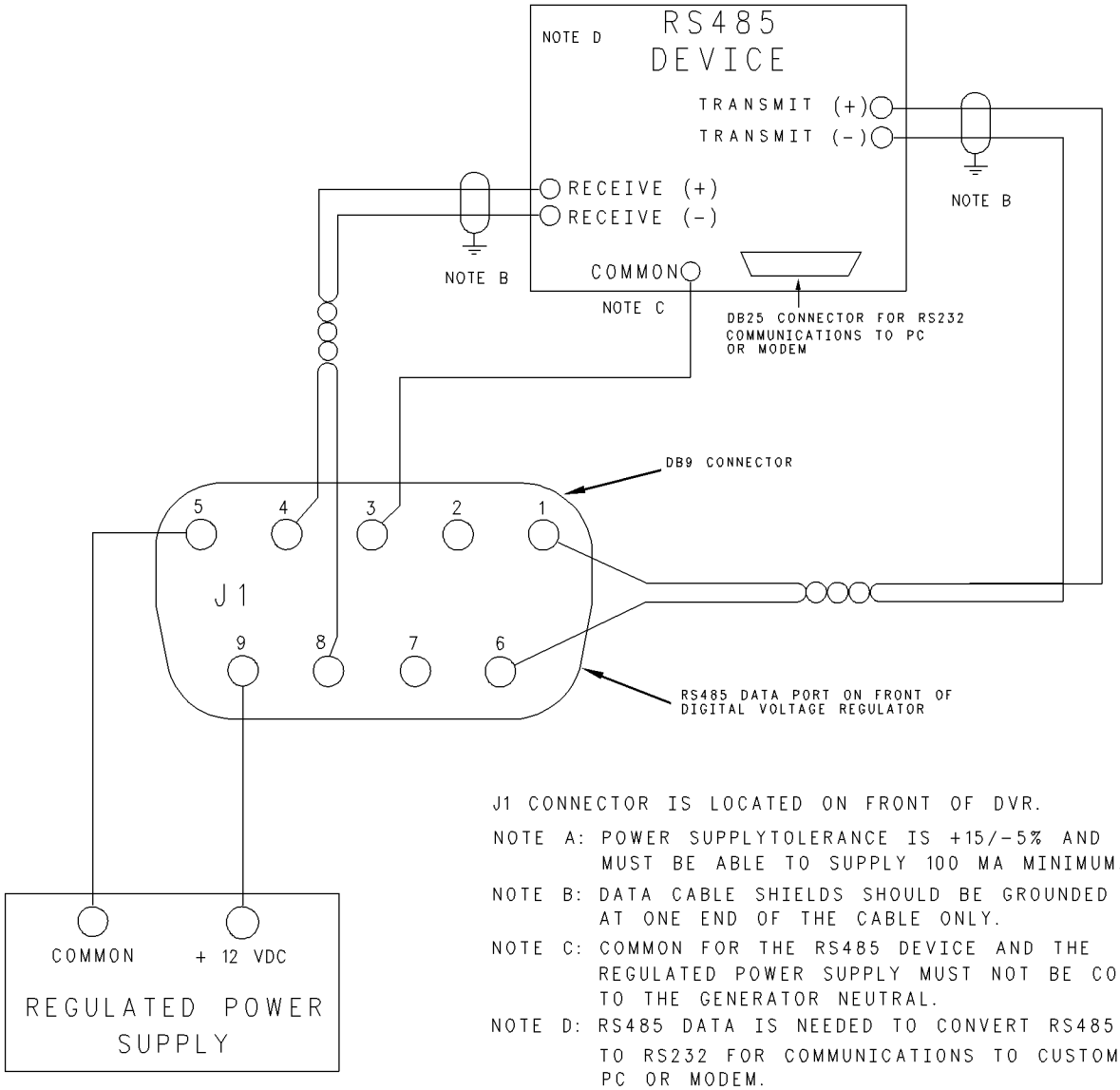


NOTE A: CONNECT SHIELD DRAIN WIRE(S) TO TERMINAL 45. INSULATE SHIELD DRAIN WIRE(S) AT RHEOSTAT END. DO NOT CONNECT SHIELD DRAIN WIRE(S) TO CHASSIS GROUND.

Illustration 61

g00539524

Digital Voltage Regulator Remote Communications Connections



J1 CONNECTOR IS LOCATED ON FRONT OF DVR.

NOTE A: POWER SUPPLYTOLERANCE IS +15/-5% AND MUST BE ABLE TO SUPPLY 100 MA MINIMUM.

NOTE B: DATA CABLE SHIELDS SHOULD BE GROUNDED AT ONE END OF THE CABLE ONLY.

NOTE C: COMMON FOR THE RS485 DEVICE AND THE REGULATED POWER SUPPLY MUST NOT BE CONNECTED TO THE GENERATOR NEUTRAL.

NOTE D: RS485 DATA IS NEEDED TO CONVERT RS485 DATA TO RS232 FOR COMMUNICATIONS TO CUSTOMER PC OR MODEM.

Illustration 62 g00697822

i01318028

Generator Wiring Diagrams (SR4B for 3500 Engines)

SMCS Code: 4450

Wiring Diagram for 3500 EUI Low Voltage With Digital Voltage Regulator and Permanent Magnet

Illustration 63 g00703081

Wiring Diagram for 3500 EUI Low Voltage With VR3 and Permanent Magnet

Illustration 64 g00703083

Wiring Diagram for 3500 EUI Low Voltage With VR3 and Self-Excitation

Illustration 65 g00703085

Wiring Diagram for 3500 EUI Medium Voltage With Digital Voltage Regulator and Permanent Magnet

Illustration 66 g00703086

Wiring Diagram for 3500 EUI Medium Voltage With VR3 and Permanent Magnet

Illustration 67 g00703088

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