EXHIBIT A

[FCC Ref. 2.1033(b)(5)]

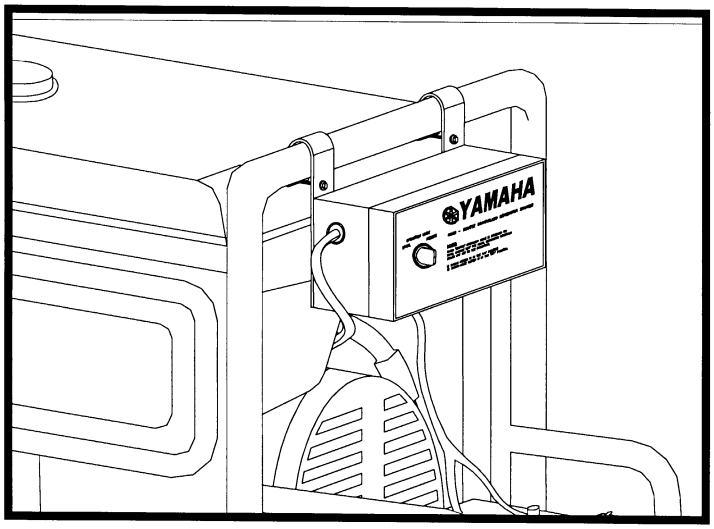
"Installation and Operating Instructions
Furnished to the User"

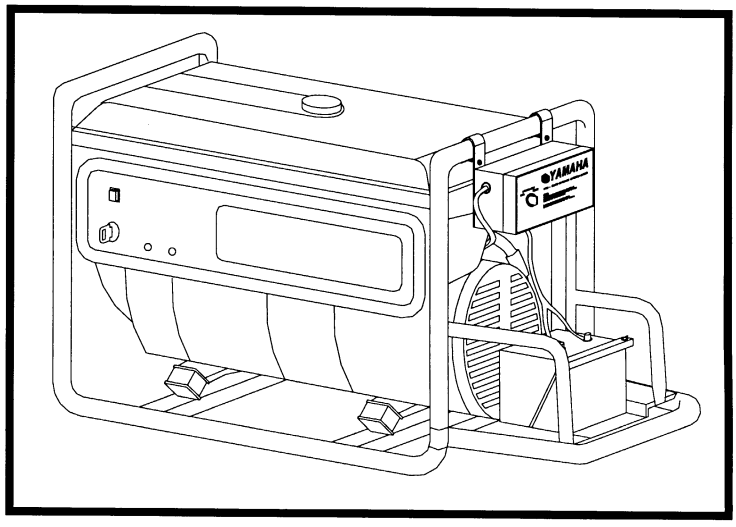
YAMAHA

RCGS - REMOTE CONTROLLED GENERATOR STARTER

RCGS – Operation Manual

FOR USE WITH
GASOLINE AND PROPANE ELECTRIC-START GENERATORS





FCC ID: POK-RCGSTX
Marstech Report No. 21201D
EXHIBIT A(1)

WARNING !!!

READ AND UNDERSTAND THE INSTRUCTIONS CONTAINED HEREINAFTER BEFORE ATTEMPTING TO INSTALL, OPERATE, OR MAINTAINING THIS DEVICE ON ANY PIECE OF EQUIPMENT.

WARNING !!!

PRIOR TO INSTALLATION OF RCGS EQUIPMENT,

1. READ AND UNDERSTAND THE OPERATING MANUAL COMPLETELY FOR YOUR SPECIFIC GENERATOR BEFORE COMMENCING OPERATION.
2. ENSURE THAT PROPER ENGINE RUN BREAK-IN PROCEDURES HAVE BEEN PERFORMED ON YOUR GENERATOR.

INFORMATION TO USER

ANY CHANGES OR MODIFICATIONS TO RCGS EQUIPMENT NOT EXPRESSLY APPROVED, JOINTLY BY YAMAHA LTD. OR EATON | CUTLER-HAMMER WILL VOID USER'S AUTHORITY TO OPERATE THIS EQUIPMENT.

OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE, INCLUDING INTERFERENCE THAT MAY CAUSED UNDESIRED OPERTATION OF THIS DEVICE.

THE TERM "IC:" BEFORE THE RADIO CERTIFICATION NUMBER ONLY SIGNIFIES THAT INDUSTRY CANADA TECHNICAL SPECIFICATIONS WERE MET.

ALL POSSIBLE CONTINGENCIES WHICH MAY ARISE DURING INSTALLATION, OPERATION OR MAINTENANCE, AND ALL DETAILS AND VARIATIONS OF THIS EQUIPMENT DO NOT PURPORT TO BE COVERED BY THESE INSTRUCTIONS. IF FURTHER INFORMATION IS DESIRED BY PURCHASER REGARDING HIS/HER PARTICULAR INSTALLATION, OPERATION OR MAINTENANCE OF PARTICULAR EQUIPMENT, CONTACT A LOCAL YAMAHA REPRESENTATIVE.

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SECTION 1: INTRODUCTION

1.1. PRELIMINARY COMMENTS AND SAFETY PRECAUTIONS

This is a technical document intended to cover most aspects associated with the installation, application, operation, and maintenance of the RCGS (Remote Controlled Generator Starter). It is provided as a guide for authorized and qualified personnel only. Please refer to the specific WARNING and CAUTION in Section 1 before proceeding.

WARNING !!!

THE WARNINGS AND CAUTIONS INCLUDED AS PART OF THE PROCEDURAL STEPS IN THIS DOCUMENT ARE FOR PERSONNEL SAFETY AND PROTECTION OF EQUIPMENT FROM DAMAGE. AN EXAMPLE OF A TYPICAL WARNING LABEL HEADING IS SHOWN ABOVE TO FAMILIARIZE PERSONNEL WITH THE STYLE OF PRESENTATION. THIS WILL HELP TO ENSURE THAT PERSONNEL AR ALERT TO WARNINGS, WHICH MAY APPEAR THROUGHOUT THIS DOCUMENT. IN ADDITION, CAUTIONS ARE ALL UPPER CASE AND BOLDFACE.

CAUTION !!!

COMPLETELY READ AND UNDERSTAND THE MATERIAL PRESENTED IN THIS DOCUMENT BEFORE ATTEMPTING INSTALLATION, OPERATION OR APPLICATION OF THE EQUIPMENT. IN ADDITION, ONLY QUALIFIED PERSTONS SHOULD BE PERMITTED TO PERFORM ANY WORK ASSOCIATED WITH THE EQUIPMENT. ANY WIRING INSTRUCTIONS PRESENTED IN THIS DOCUMENT MUST BE FOLLOWED PRECISELY. FAILURE TO DO SO COULD CAUSE PERMENANT EQUIPMENT DAMAGE.

1.1.1. WARRANTY AND LIABILITY INFORMATION

No warranties, expressed or implied, including warranties of fitness for a particular purpose of merchantability, or warranties arising form course dealing or usage of trade, are made regarding the information, recommendations and descriptions contained herein. In no event will Yamaha and or Eaton | Cutler-Hammer be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or otherwise special, indirect, incidental or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information and descriptions contained herein.

1.1.2. SAFETY PRECAUTIONS

All safety codes, safety standards and/or regulations must be strictly observed in the installation, operation and maintenance of this device, or any associated equipment that this device may be installed with or on.

SECTION 2: RECEIVING, HANDLING, AND STORAGE

2.1. RECEVING/HANDLING

Every effort is made to ensure that the RCGS unit arrives at its destination undamaged and ready for installation. Packaging is designed to protect internal and external components, as well as the enclosure. However, care should be exercised to protect any of the RCGS equipment from impact at all times. Do not remove protective packaging until this equipment is ready for installation.

2.2. STORAGE

Although well packaged, this equipment is not suitable for storage outdoors. The RCGS unit comes with a remote transmitter, which should not be exposed to harsh environments (i.e. dirt, corrosive conditions, and excessive moisture). The equipment warranty will not be applicable if there is evidence of outdoor storage. It is strongly suggested that the packaged protected equipment be stored in a climate-controlled environment of –20°C to 65°C with a relative humidity of 80% or less.

SECTION 3: EQUIPMENT DESCRIPTION

3.1. INTRODUCTION

In today's market, most manufacturers of small powered gasoline and LPG generators do not provide a method of automatic remote starting and stopping of their generators. Current methods of remote starting and stopping is achieved manually through hard-wired devices that require inter-cable connections which can only be operate from limited distances. Traditional remote starting methods can now be replaced with the wireless RCGS (Remote Controlled Generator Starter) unit designed exclusively for Yamaha gasoline (Cdn. & US models) and propane (Cdn. Models) electric start generators. It utilizes existing electrical connections and generator structure for quick and easy installation.

3.2. MODES OF OPERATION

The RCGS has three primary modes of operation, 'Off', 'Local', and 'Remote.' These modes are user selected via the 'Operation Mode' selector switch located on the front of the RCGS unit. (Refer to Figure 1)

3.2.1. 'OFF' OPERATION

With the 'Operation Mode' switch in the 'Off' position, the user has disabled generator starting altogether. The generator cannot be started by local generator controls or by the RCGS unit.

3.2.2. 'LOCAL' OPERATION

With the 'Operation Mode' switch in 'Local' position, the user has selected local generator operation whereby the only means of starting the generator is through the local panel controls on the front of the generator.

NOTE: FOR LOCAL GENERATOR OPERATION, PLEASE REFER TO YOUR OPERATING MANUAL FOR YOUR SPECIFIC GENERATOR.

3.2.3. 'REMOTE' OPERATION

With the 'Operation Mode' switch in 'Remote' position, the user has selected remote control operation whereby the only method of starting the generator is through the RCGS unit.
In this mode, the function of the RCGS is to automatically control the start and stop operation of a generator via an input remote signal. The RCGS utilizes two types input remote signals, a hand-held remote transmitter (key-fob), and a remote engine start contact input.

3.2.3.1. REMOTE TRANSMITTER

The first method is used in applications whereby the generator might be used in the field as a portable power supply for machinery, tools or any other required loads typically used in trades. This method of starting would be similar to the remote starter on your car whereby the hand-held remote transmitter is a two-button user operated device. One button would be used to activate the cranking/starting sequence while the other button would be used to activate the stopping sequence of the generator.

Refer to Section 7.2 for Remote Transmitter operation.

3.2.3.2. ENGINE START INPUT

The second method is for applications whereby your Yamaha generator might be used in conjunction with an automatic transfer switch to provide backup power for when utility outages occur.

To provide some background, an automatic transfer switch is an electrical device used to protect essential electrical loads against loss of power. Utility power (normal source) is backed up by an emergency power source (usually a generator). The transfer switch is connected to both normal and emergency power sources and supplies the power to the load with power from one of these two sources. In the event that power is lost from the normal power source, the transfer switch closes an engine start contact that which initiates generator starting. When the generator is up to speed with emergency power available, the transfer switch transfers the load to the generator. Eventually, when normal power is restored, the transfer switch transfers the load back to utility power and opens the engine start causing the generator to shut down.

The RCGS unit utilizes a factory set Engine Start Input designed specifically to accept a dry engine start contact for transfer switch applications. When a closed contact is applied to this input, it activates the starting process. When this contact is opened, the generator stops.

Refer to Section 7.3 for Engine Start Input operation.

3.3. RCGS CONTROL CONNECTOR

The RCGS unit gains access to key generator control circuits by plugging the RCGS control connector into the generator remote terminal. The generator remote terminal provides a connection point for three important circuits, the Generator Status output, Ignition circuit, and the Starter Motor circuit.

Refer to Section 8: Wiring Diagrams for control scheme.

3.3.1. GENERATOR STATUS INPUT

The generator remote terminal provides a two-wire output signal to the Generator Status input of the RCGS unit. The RCGS unit monitors this output to determine if the generator is running once a start request has occurred. Once the RCGS unit determines that the generator is running, the Motor Starter Relay is disabled from further operation.

The RCGS Generator Status Input comes with two configurations intended on accommodating the status outputs for Canadian and USA model generators. For specific setup, refer to Section 5.2: RCGS SETUP for Generator Status Input configuration.

3.3.2. MOTOR STARTER RELAY

The RCGS Motor Starter Relay provides a normally open (NO) contact to the generator starter motor circuit. When a start request is issued, the Motor Starter Relay contact is closed engaging the starter motor of the generator. Once the Generator Status input of the RCGS recognizes that the generator is up to speed and running, the Motor Starter Relay contact opens and the starter motor of the generator stops cranking.

3.3.3. RUN ENABLE RELAY

The RCGS Run Enable Relay provides a normally closed (NC) contact to the ignition circuit of the generator. Normally, when the generator is not running or a stop request has been issued the Run Enable Relay contact is closed which intern shorts the ignition circuit inhibiting any starting from occurring. When a start request is issued, the Run Enable Relay contact is opened enabling the ignition circuit to operate.

3.4. PROTECTIVE FEATURES

The RCGS unit comes with two built-in generator protective features, crank limit protection, and time delay on restart command.

3.4.1. CRANK LIMIT PROTECTION

This feature limits the number of cranking operations applied to the generator. The purpose of this is two-fold whereby battery drain and damage to the starter motor is prevented to due to a limitation imposed on starting.

A start operation is defined as a crank cycle of 7 seconds followed by a rest period of 5 seconds. In the event that your generator will not start, this feature limits the total number of successive start operations to four. If the generator does not start, the crank limit protection feature is activated preventing any further cranking from occurring. This protective feature must be manually reset by the user by one of the following two methods,

1. If the Remote Transmitter (Key-Fob) is used to control the starting and stopping operation of the generator, it must also be used to reset this protective feature. This is accomplished by pressing the 'stop' (black) button on the remote.

2. If the Engine Start Input is used to control the starting and stopping operation of the generator. The 'Operation Mode' selector switch must be used to reset this feature. This can be accomplished by switching from 'Remote' position to 'Local' position, and then back to 'Remote' position.

3.4.2. TIME DELAY ON STOP

This feature is required for the protection of the generator starter motor. The RCGS unit implements a five-second delay after a stop command has been issued either by the remote transmitter or the engine start input. This purpose is to avoid starter damage by allowing the generator to come to a complete stop before re-engaging the starter motor.

SECTION 4: SPECIFICATONS

4.1. ELECTRICAL SPECIFICATIONS

TABLE 1: ELECTRICAL SPECIFICATIONS

Operating Voltage:	7.5-18Vdc (from generator battery)
Voltage Measurement (Generator Status Input):	14Vac RMS @ 120Hz (Cdn. Models only)
	120Vac RMS @ 60Hz (US models only)
Wireless Hand-held Remote Operating Distance:	100-150 feet (30-45 metres)

4.2. ENVIRONMENTAL SPECIFICATIONS

TABLE 2: ENVIRONMENT SPECIFICATIONS

Operating temperature range:	30 to +70 °C
Storage temperature range:	40 to +85 °C
Operating humidity: (Receiver)	0 to 95% RH (Non condensing)
(Transmitter)	0 to 80% RH (Non condensing)

4.3. APPLICABLE TEST STANTARDS

The RCGS conforms to the following test standards:

- UL conformance
- CSA Conformance
- FCC Compliance

INDUSTRY CANADA COMPLIANCE

SECTION 5: INDENTIFICATION AND SETUP

5.1. PART IDENTIFICATION CHECK-LIST

Prior to installation, please check to ensure all components identified in the table below have been shipped complete with your RCGS unit. These components will be required for installation and use of this device.

FIGURE 1: COMPONENT CHECK-LIST

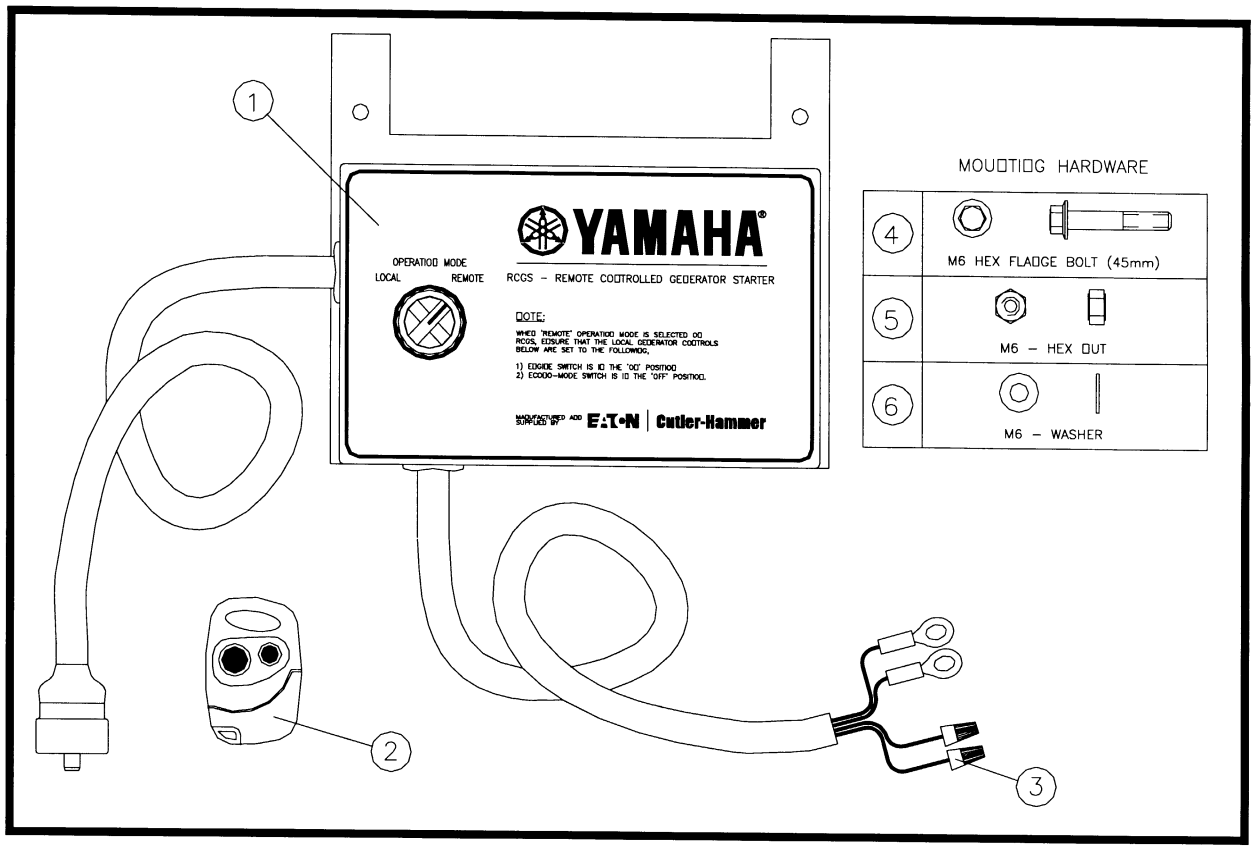


TABLE 3: COMPONENT CHECK-LIST

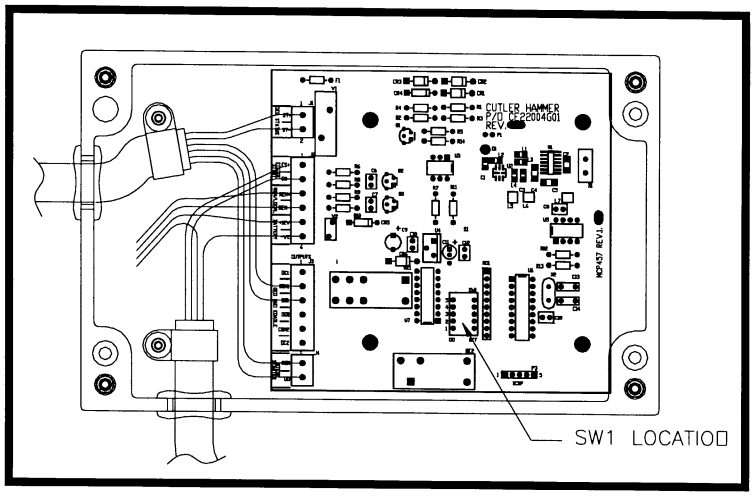
No.	PART NAME / DESCRIPTION	QUANTITY
1	RCGS – RECEIVER C/W MOUNTING BRACKET	1
2	RCGS – TWO BUTTON TRANSMITTER (KEY FOB)	1
3	MARRETTE – (#18 – # 14 AWG)	2
4	METRIC M6 – HEX FLANGE BOLT	2
5	METRIC M6 – HEX NUT	2
6	METRIC M6 – WASHER	2

5.2. RCGS SETUP

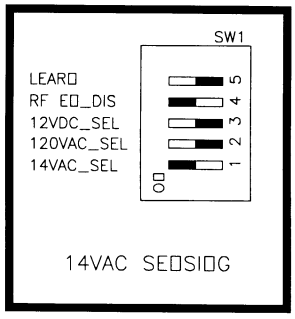
Prior to installation, it is very important to ensure that the RCGS unit is set up correctly to control your generator properly. The reason for this is that the RCGS unit senses an output signal from the remote terminal on your generator to determine the running status during a start operation. Once the RCGS determines that the generator is up to speed and running, it will disengage the starter motor preventing any further cranking from occurring while the generator is running. **If the setup is incorrect, the RCGS will not be able to determine the running status of the generator during a start operation. When this occurs, the RCGS will engage the starter motor and continue the cranking cycle even though the generator is running. This will cause damage to the starter motor and/or generator.**

The RCGS has two configurations intended to accept the engine status output signal from both Canadian and U.S. model electric start generators. Canadian model generators provide a 14VAC/120Hz (RMS) output signal whereas U.S. model generators provide a 120VAC/60Hz (RMS) output signal. **All RCGS units are factory set to accept the engine status signal for U.S. model generators.**

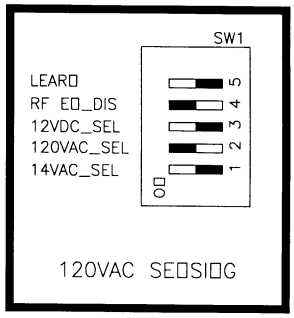
Configuring the RCGS to accept the proper engine status signal is done by configuring SW1 dip-switch located on the PCB (printed circuit board) internal to the RCGS enclosure. By removing the lid, this switch can be easily identified and accessed.



1. REMOVE LID FROM RCGS UNIT AND IDENTIFY SWITCH `SW1.



2A. IF GENERATOR IS CANADIAN MODEL. CONFIGURE DIP SWITCHES ON SW1 TO 14VAC SENSING AS INDICATED ABOVE.



2B. IF GENERATOR IS U.S. MODEL. VERIFY DIP SWITCH SETTINGS ON SW1 ARE FACTORY SET TO 120VAC SENSING AS INDICATED ABOVE. IF NOT, CONFIGURE SW1 120VAC SENSING AS INDICATED ABOVE.

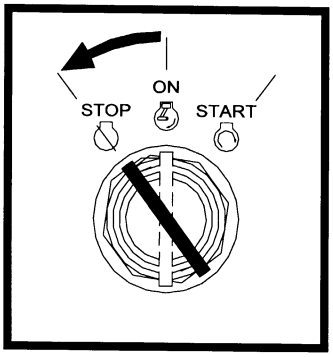
SECTION 6: INSTALLATION AND WIRING

6.1. INSTALLATION

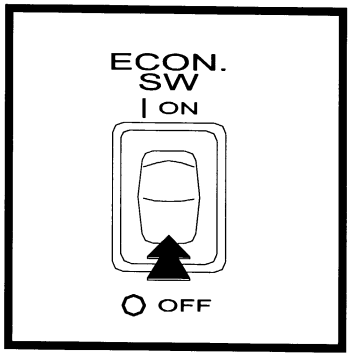
WARNING !!!

Prior to installation of RCGS equipment,

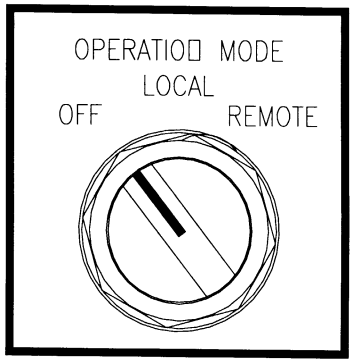
1) **Read and understand the operating manual completely for your specific generator before commencing operation.**
2) **Ensure that your generator is operational and the proper generator run break-in procedures have been performed on your generator.**



1. TURN MAIN SWITCH ON GENERATOR CONTROL PANEL TO 'STOP' OR 'OFF' POSITION.



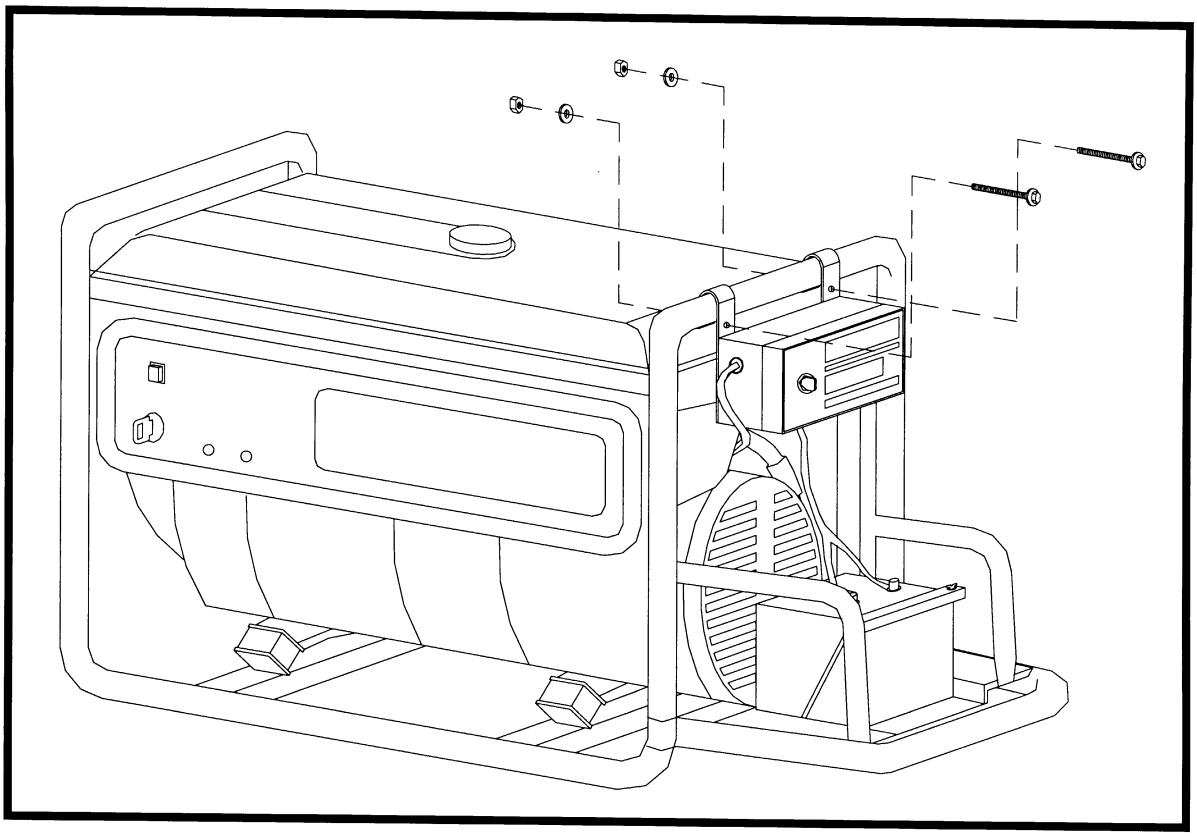
2. TURN ECONOMY IDLE SWITCH TO 'OFF' POSITION.



3. TURN RCGS OPERATION MODE SWITCH TO 'OFF' POSITION.

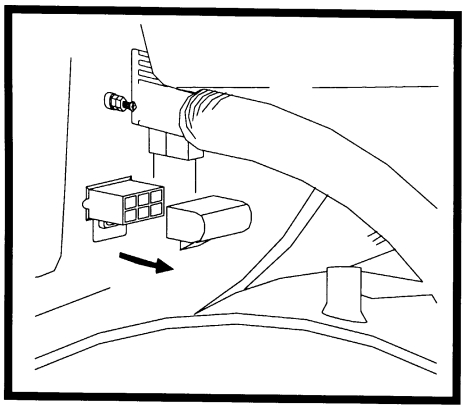
CAUTION !!!

NOTE: ECONOMY IDLE MODE REDUCES GENERATOR FREQUENCY WHEN SELECTED. THE RCGS SENSES GENERATOR VOLTAGE AND FREQUENCY DURING STARTING AND DAMAGE MAY RESULT TO GENERATOR STARTER IF ECONOMY IDLE SWITCH IS LEFT IN THE 'ON' POSITION WHEN USING THE RCGS UNIT. PRIOR TO RCGS OPERATION, ENSURE THAT THE ECONOMY IDLE SWITCH IS IN THE 'OFF' POSITION.

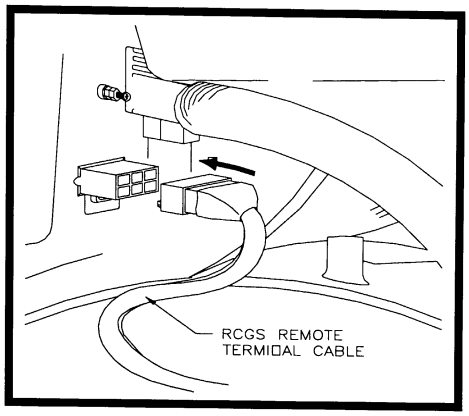


4. LOCATE AND MOUNT RCGS UNIT ON THE BATTERY SIDE OF THE GENERATOR FRAME AS SHOWN ABOVE. FASTEN USING ITEMS 4, 5, AND 6 IDENTIFIED FROM TABLE 3.

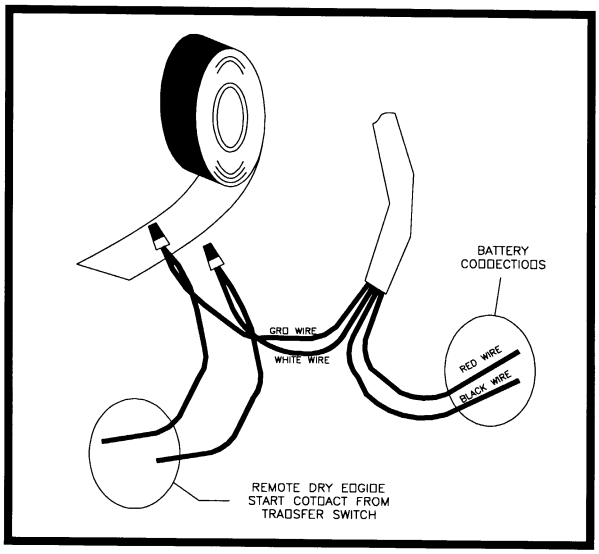
6.2. WIRING



1. REMOVE CONNECTOR COVER FROM REMOTE TERMINAL ON GENERATOR.

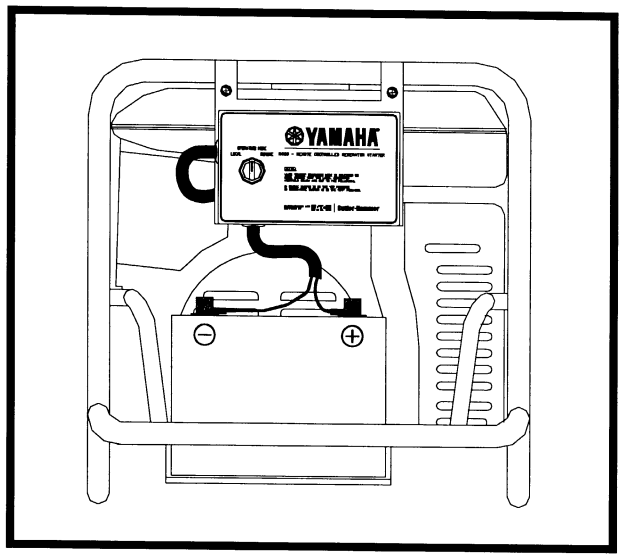


2. CONNECT RCGS CONTROL PLUG INTO REMOTE TERMINAL ON GENERATOR.



3. IF YOUR APPLICATION DOES NOT REQUIRE THE ENGINE START INPUT, IGNOR THIS STEP AND CONTINUE TO STEP 4, OTHERWISE FOLLOW INSTRUCTIONS BELOW.

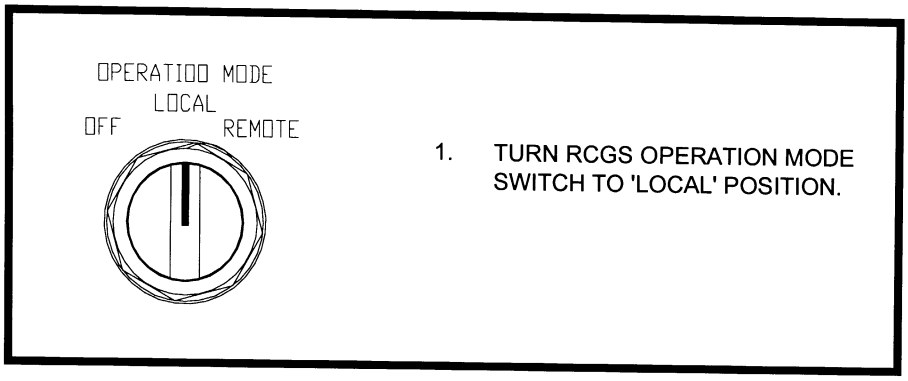
   USING MARRETTES PROVIDED CONNECT THE TRANSFER SWITCH ENGINE START CONTACT TO THE WIRES MARKED 'ES.'
   USING ELECTRICAL TAPE, CAREFULLY WRAP AROUND EACH MARRETTE AND WIRE SEVERAL TIMES TO PREVENT CONNECTION FROM LOOSENING IN THE FUTURE.



4. CONNECT RED WIRE TO (+) TERMINAL ON BATTERY AND BLACK WIRE TO (-) TERMINAL ON BATTERY.

SECTION 7: OPERATION MODES

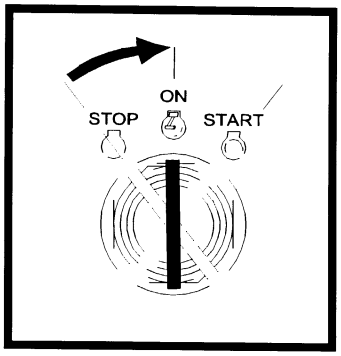
7.1. LOCAL GENERATOR OPERATION



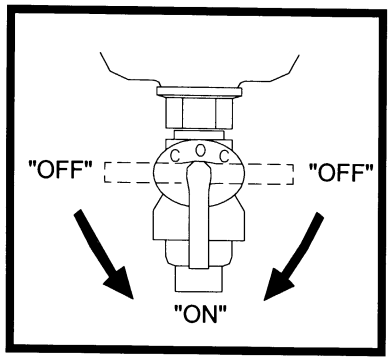
1. TURN RCGS OPERATION MODE SWITCH TO 'LOCAL' POSITION.

With the 'Operation Mode' switch set to 'Local' position, generator starting can only be accomplished through the local panel controls on the front of the generator. For starting and stopping procedures, refer to operation manual for your specific generator.

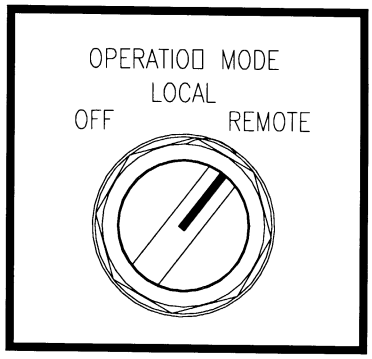
7.2. REMOTE TRANSMITTER OPERATION



1. TURN MAIN SWITCH ON GENERATOR CONTROL PANEL TO 'ON' POSITION.

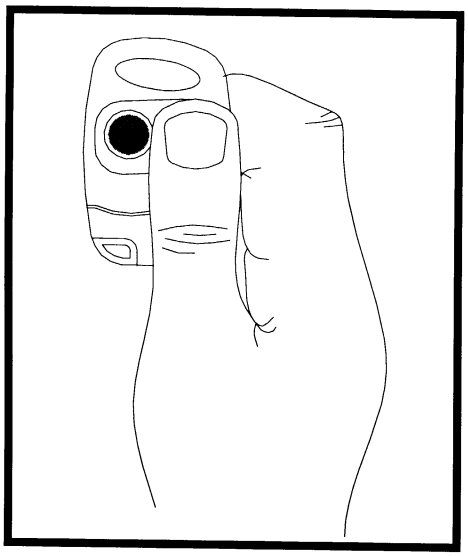


2. TURN FUEL PETCOCK TO 'ON' POSITION.

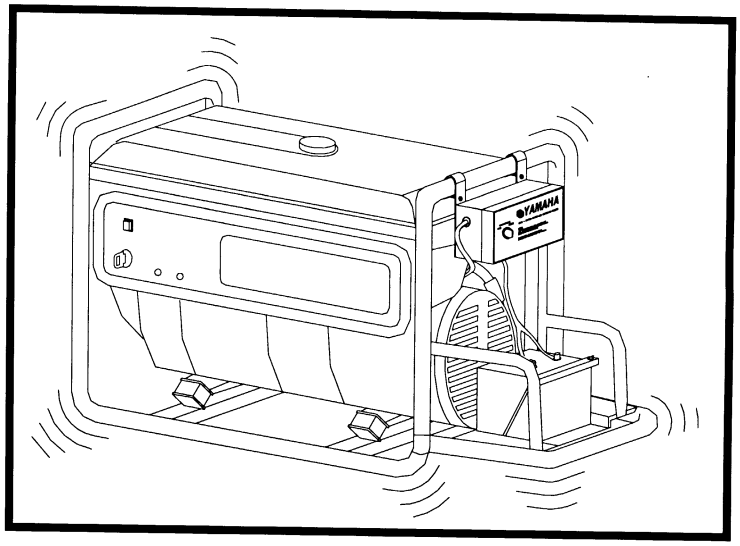


3. TURN RCGS OPERATION MODE SWITCH TO 'REMOTE' POSITION.

THE RCGS UNIT IS NOW READY TO RECEIVE A REMOTE INPUT START COMMAND.



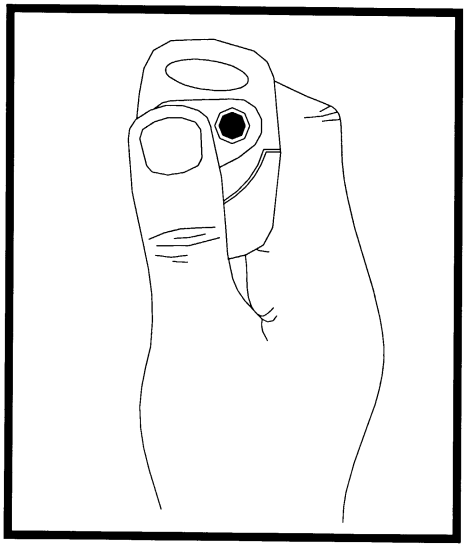
4. PRESS GREEN 'START' BUTTON ON REMOTE TRANSMITTER.



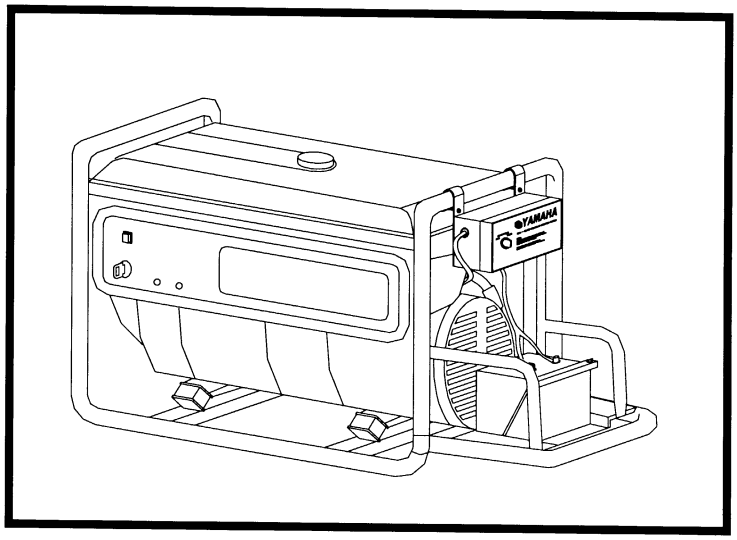
5. THE GENERATOR SHOULD BEGIN TO CRANK AND START RUNNING. IF THE GENERATOR DOES NOT START WITHIN 4 CRANKING OPERATIONS, THE CRANK LIMIT PROTECTION WILL ACTIVATE AND PROHIBIT ANY FURTHER STARTING. TO RESET THE CRANK LIMIT PROTECTION FEATURE, PRESS BLACK 'STOP ' BUTTON ON REMOTE AND REPEAT STEP 4.

   BEFORE APPLYING A LOAD TO THE GENERATOR, WARM UP ENGINE FOR A MINIMUM 60 SECONDS.

NOTE: YOUR GENERATOR SHOULD START WITHIN 4 CRANKING OPERATIONS OR LESS. FAILURE TO START WITHIN 4 CRANKING OPERATIONS USUALLY INDICATES A PROBLEM WITH THE GENERATOR SET UP.

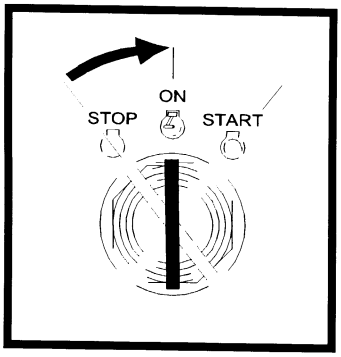


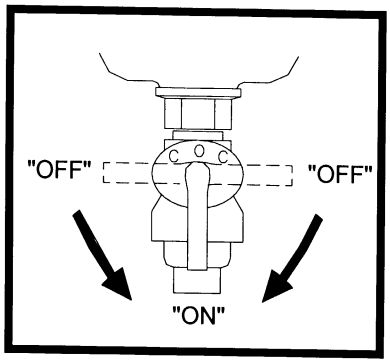
5. PRESS BLACK 'STOP' BUTTON ON REMOTE TRANSMITTER.

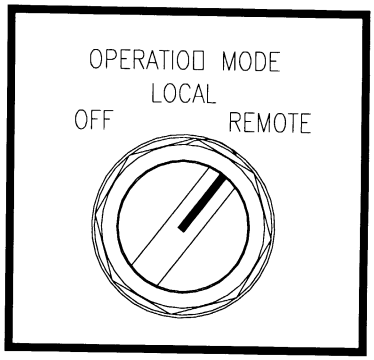


6. THE GENERATOR SHOULD STOP RUNNING AND COME TO A STAND STILL.

7.3. ENGINE START INUT OPERATION

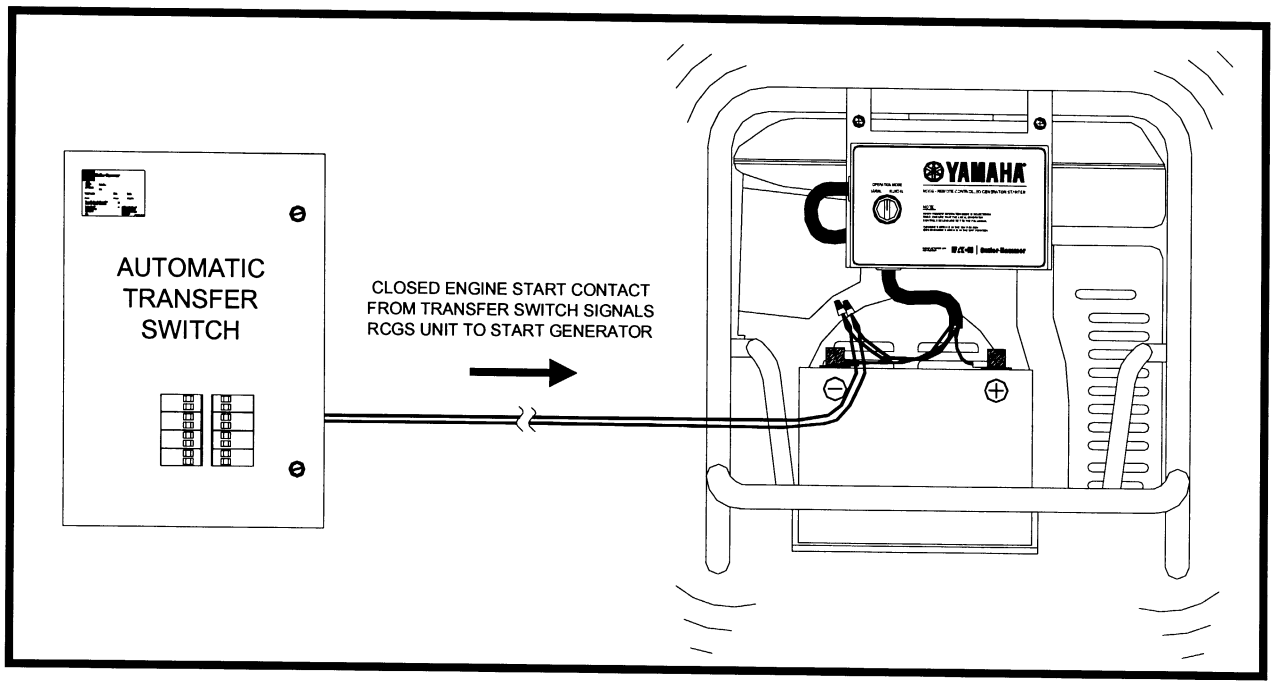






1. TURN MAIN SWITCH ON GENERATOR CONTROL PANEL TO 'ON' POSITION.
2. TURN FUEL PETCOCK TO 'ON' POSITION.
3. TURN RCGS OPERATION MODE SWITCH TO 'REMOTE' POSITION.

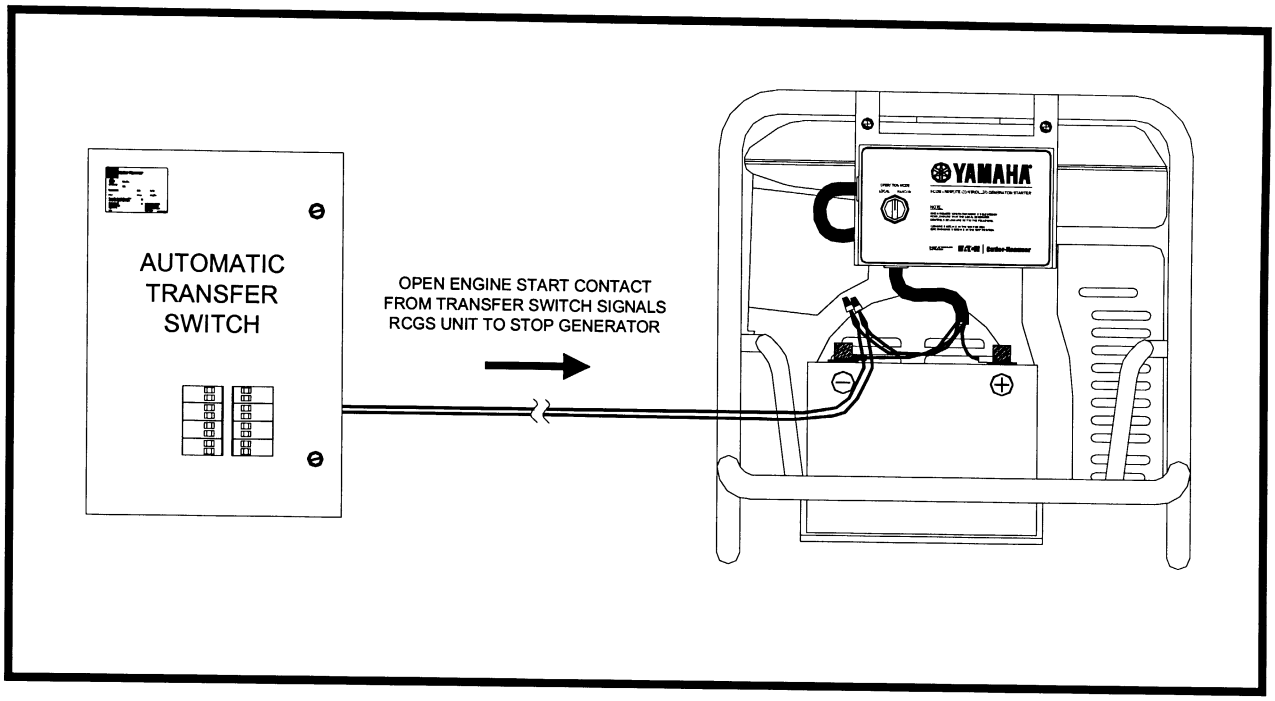
THE RCGS UNIT IS NOW READY TO RECEIVE A REMOTE INPUT START COMMAND.



4. WITH LOSS OF NORMAL POWER OR UTILITY POWER, THE TRANSFER SWITCH ENGINE START CONTACT SHOULD CLOSE.
5. THE GENERATOR SHOULD BEGIN TO CRANK AND START RUNNING. IF THE GENERATOR DOES NOT START WITHIN 4 CRANKING OPERATIONS, THE CRANK LIMIT PROTECTION WILL ACTIVATE AND PROHIBIT ANY FURTHER STARTING. TO RESET THE CRANK LIMIT PROTECTION FEATURE, THE 'OPERATION MODE' SWITCH MUST BE SWITCHED FROM 'REMOTE' POSITION TO 'LOCAL' POSITION, AND THEN BACK TO 'REMOTE' POSITION.

   TRANSFER SWITCH SHOULD ALLOW FOR A 2 MINUTE ENGINE WARM-UP PERIOD BEFORE TRANSFERING LOAD TO THE GENERATOR.

NOTE: YOUR GENERATOR SHOULD START WITHIN 4 CRANKING OPERATIONS OR LESS. FAILURE TO START WITHIN 4 CRANKING OPERATIONS USUALLY INDICATES A PROBLEM WITH THE GENERATOR SET UP.



6. WITH NORMAL POWER OR UTILITY POWER BEING RESTORED, THE TRANSFER SWITCH ENGINE START CONTACT SHOULD OPEN.

7. WHEN THE ENGINE START CONTACT OPENS, THE GENERATOR SHOULD STOP RUNNING AND COME TO A STAND STILL.

MODES OF OPERATIO□:

1) 'Operation Mode' switch set to 'OFF' – This setting prevents generator from starting.

2) 'Operation Mode' switch set to 'LOCAL' – This setting allows user starting and stopping of generator via local panel controls on generator.

3) 'Operation Mode' switch set to 'REMOTE' – This setting allows generator starting and stopping to be performed by a RCGS remote input signal. The remote input can be via user operated Remote Transmitter or the Engine Start Input.

REMOTE TRA□SMITTER:

The Remote Transmitter (Key Fob) is a hand–held two–button device. The green button is used to activate the starting sequence and the black button is used to stop the generator.

E□GI□E START I□PUT:

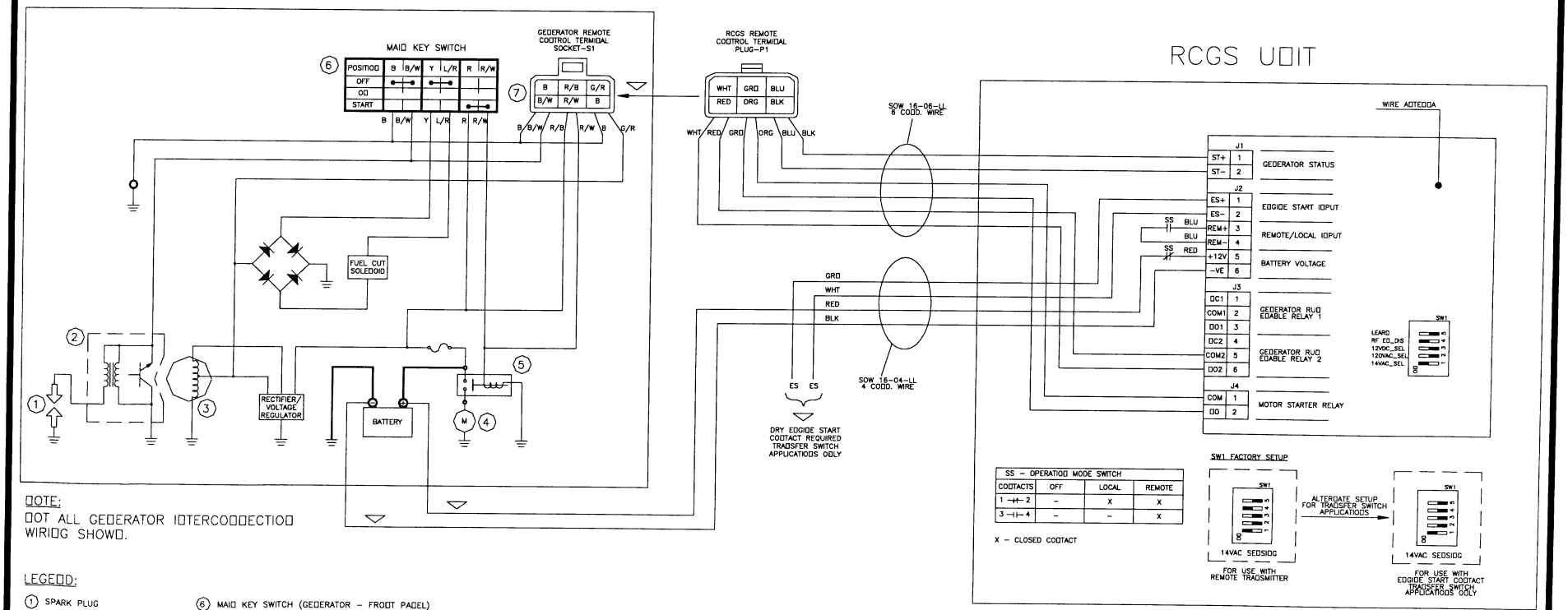
The Engine Start Input accepts a dry engine start contact from a transfer switch. When this contact is closed, it activates the starting sequence. When this contact is opened, the generator stops running.

REMOTE I□PUT OPERATIO□:

When a start–input request is initiated by Remote Transmitter or Engine Start input, the Run Enable relay is energized enabling the operation of the generator ignition circuit. The Motor Starter Relay is then enabled to begin the start operation cycle (i.e. 5–second rest period). Once the Generator Status input of the RCGS recognizes that the generator is up to speed and running, the Motor Starter Relay is disabled preventing further cranking from occurring. When a stop–input request occurs, the Run Enable relay is de–energized disabling the generator ignition circuit and bringing the generator to a stop.

□OTE: If the generator does not start within four starting operations, the Crank Limit protection feature will be activated preventing any further starting from occurring. The Crank Limit protection feature must be reset by the user if further starting operation is required.

GE□ERATOR CO□TROLS



□OTE:
□OT ALL GE□ERATOR I□TERCO□□ECTIO□ WIRI□G SHOW□.

LEGE□□:

① SPARK PLUG
② TCI U□IT
③ CHARGI□G COIL
④ STARTER MOTOR
⑤ STARTER MOTOR RELAY
⑥ MAI□ KEY SWITCH (GE□ERATOR – FRO□T PA□EL)
⑦ REMOTE CO□TROLO TERMI□AL (GE□ERATOR – BACK PA□EL)
⑧ DIO□E
▽ – CUSTOMER REQUIRED CO□□ECTIO□

FIGURE 2: WIRING DIAGRAM (GASOLINE GENERATOR FOR CANADA ONLY)

MODES OF OPERATIO□:

1) 'Operation Mode' switch set to 'OFF' – This setting prevents generator from starting.

2) 'Operation Mode' switch set to 'LOCAL' – This setting allows user starting and stopping of generator via local panel controls on generator.

3) 'Operation Mode' switch set to 'REMOTE' – This setting allows generator starting and stopping to be performed by a RCGS remote input signal. The remote input can be via user operated Remote Transmitter or the Engine Start Input.

REMOTE TRA□SMITTER:

The Remote Transmitter (Key Fob) is a hand–held two–button device. The green button is used to activate the starting sequence and the black button is used to stop the generator.

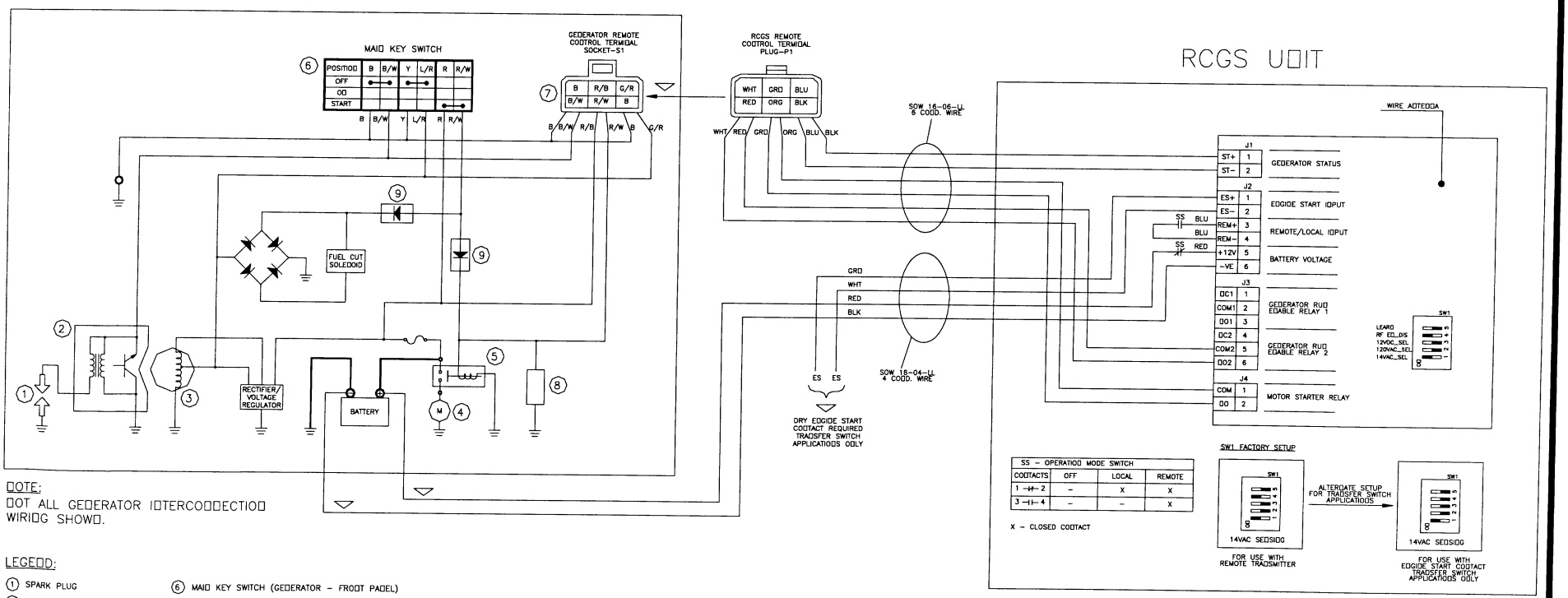
E□GI□E START I□PUT:

The Engine Start Input accepts a dry engine start contact from a transfer switch. When this contact is closed, it activates the starting sequence. When this contact is opened, the generator stops running.

REMOTE I□PUT OPERATIO□:

When a start–input request is initiated by Remote Transmitter or Engine Start input, the Run Enable relay is energized enabling the operation of the generator ignition circuit. The Motor Starter Relay is then enabled to begin the start operation cycle (i.e. 5–second rest period). Once the Generator Status input of the RCGS recognizes that the generator is up to speed and running, the Motor Starter Relay is disabled preventing further cranking from occurring. When a stop–input request occurs, the Run Enable relay is de–energized disabling the generator ignition circuit and bringing the generator to a stop.

□OTE: If the generator does not start within four starting operations, the Crank Limit protection feature will be activated preventing any further starting from occurring. The Crank Limit protection feature must be reset by the user if further starting operation is required.



□OTE:
□OT ALL GE□ERATOR I□TERCO□□ECTIO□ WIRI□G SHOW□.

LEGE□□:

① SPARK PLUG
② TCI U□IT
③ CHARGI□G COIL
④ STARTER MOTOR
⑤ STARTER MOTOR RELAY
⑥ MAI□ KEY SWITCH (GE□ERATOR – FRO□T PA□EL)
⑦ REMOTE CO□TRO□ TERMI□AL (GE□ERATOR – BACK PA□EL)
⑧ LPG – SOLE□OI□ VALVE
⑨ □IO□E
▽ – CUSTOMER REQUIRE□ CO□□ECTIO□

FIGURE 3: WIRING DIAGRAM (LPG GENERATOR FOR CANADA ONLY)

MODES OF OPERATIO:

1) 'Operation Mode' switch set to 'OFF' – This setting prevents generator from starting.

2) 'Operation Mode' switch set to 'LOCAL' – This setting allows user starting and stopping of generator via local panel controls on generator.

3) 'Operation Mode' switch set to 'REMOTE' – This setting allows generator starting and stopping to be performed by a RCGS remote input signal. The remote input can be via user operated Remote Transmitter or the Engine Start Input.

REMOTE TRASMITTER:

The Remote Transmitter (Key Fob) is a hand–held two–button device. The green button is used to activate the starting sequence and the black button is used to stop the generator.

EGIE START IPUT:

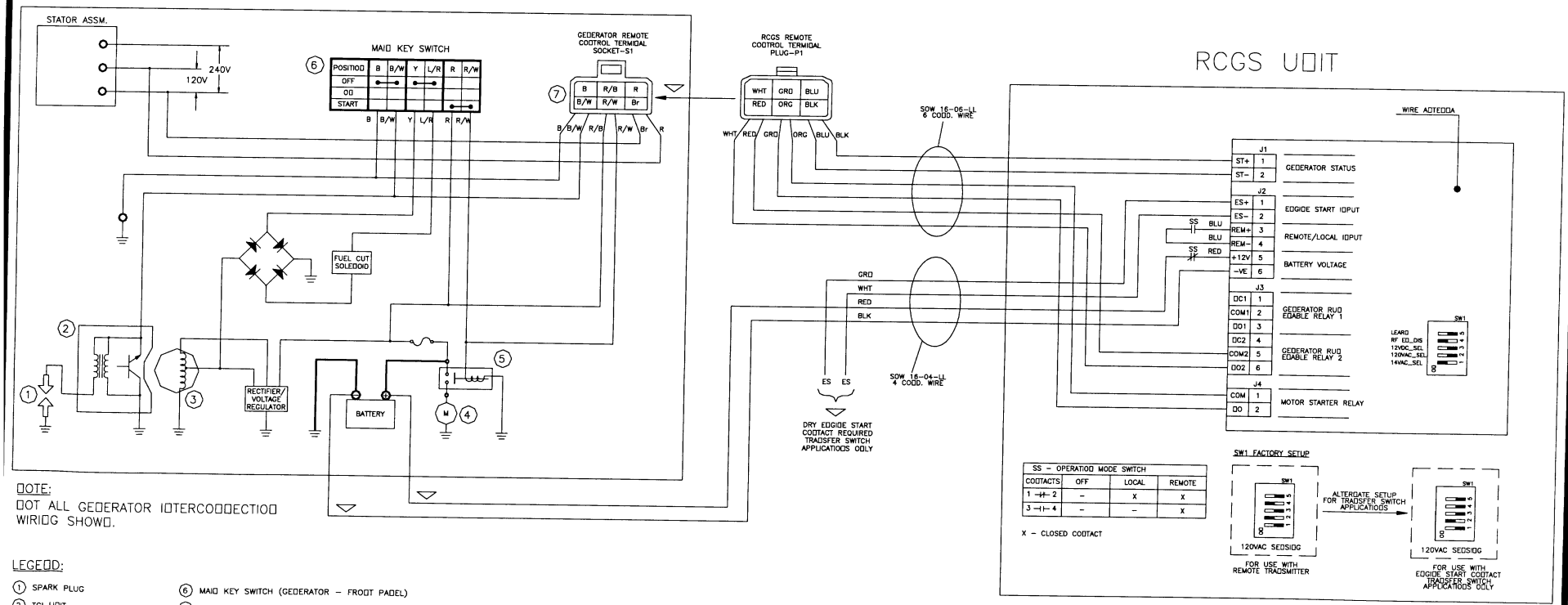
The Engine Start Input accepts a dry engine start contact from a transfer switch. When this contact is closed, it activates the starting sequence. When this contact is opened, the generator stops running.

REMOTE IPUT OPERATIO:

When a start–input request is initiated by Remote Transmitter or Engine Start input, the Run Enable relay is energized enabling the operation of the generator ignition circuit. The Motor Starter Relay is then enabled to begin the start operation cycle (i.e. 5–second rest period). Once the Generator Status input of the RCGS recognizes that the generator is up to speed and running, the Motor Starter Relay is disabled preventing further cranking from occurring. When a stop–input request occurs, the Run Enable relay is de–energized disabling the generator ignition circuit and bringing the generator to a stop.

OTE: If the generator does not start within four starting operations, the Crank Limit protection feature will be activated preventing any further starting from occurring. The Crank Limit protection feature must be reset by the user if further starting operation is required.

GEERATOR COTROLS



OTE:
OT ALL GEERATOR ITERCOECTIO WIRIG SHOW.

LEGEO:

1. SPARK PLUG
2. TCI UIT
3. CHARGIG COIL
4. STARTER MOTOR
5. STARTER MOTOR RELAY
6. MAI KEY SWITCH (GEERATOR – FROT PAEL)
7. REMOTE COTROLO TERMIAL (GEERATOR – BACK PAEL)
8. DIODE

▽ – CUSTOMER REQUIRED OECTIO

FIGURE 4: WIRING DIAGRAM (GASOLINE GENERATOR FOR U.S. ONLY)

SECTION 8: TROUBLE-SHOOTING

STEP	ACTION
A. Using local generator controls, generator will crank but not start.	In order to start generator from local controls, make sure that the 'Operation Mode' switch is in 'Local' position. If 'Operation Mode' switch is set to 'Off' or 'Remote' position, generator will not start using local generator controls.
B. When using a Remote Input Signal, generator will crank but not start when 'Operation Mode' switch is set to 'Remote' position.	Make sure that the 'Main Switch' on the local generator panel controls is set to "On" position. Generator will not start from a remote input signal if 'Main Switch' is set to 'OFF' or 'STOP' position.
C. Generator starter motor continues to crank even though generator is running. Generator will shut down after four starting operations.	Check F1 is open on RCGS printed circuit board. If F1 is open, replace RCGS printed circuit board.
D. Generator starter motor barely cranks or turns over when trying to start.	Check for low charge on battery. If battery voltage low, re-charge or replace.