

# FOREWORD

This Arctic Cat Service Manual Volume II contains service and maintenance information for the Model Year 2000 Arctic Cat Snowmobiles. The complete two-volume set is designed to aid service personnel in service-oriented applications and may be used as a textbook for service training.

This volume is divided into sections. The sections cover specific snowmobile components or systems and, in addition to the standard service procedures, includes assembling, disassembling, and inspecting instructions. When using this manual as a guide, the technician should use discretion as to how much disassembly is needed to correct any given condition.

The service technician should become familiar with the operation and construction of the components or systems by carefully studying the complete two-volume set. This will assist the service technician in becoming more aware of and efficient with servicing procedures. Such efficiency not only helps build consumer confidence but also saves time and labor.

All Arctic Cat publications and snowmobile decals display the words Warning, Caution, and Note to emphasize important information. The symbol ⚠ **WARNING** identifies personal safety-related information. Be sure to follow the directive because it deals with the possibility of severe personal injury or even death. The symbol ⚠ **CAUTION** identifies unsafe practices which may result in snowmobile-related damage. Follow the directive because it deals with the possibility of damaging part or parts of the snowmobile. The symbol ■ **NOTE:** identifies supplementary information worthy of particular attention.

At the time of publication, all information, photographs, and illustrations were technically correct. Some photographs and illustrations used in this volume are used for clarity purposes only and are not designed to depict actual conditions. Because Arctic Cat Inc. constantly refines and improves its products, no retroactive obligation is incurred.

All materials and specifications are subject to change without notice.

Keep this manual accessible in the shop area for reference.

**Product Service and  
Warranty Department  
Arctic Cat Inc.**





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# SECTION 6 — CHASSIS ELECTRICAL SYSTEMS

**6**

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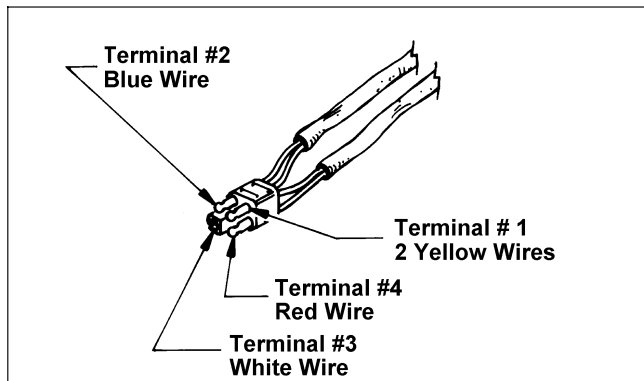
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## Brakelight Switch (Hydraulic System)

### TESTING/REMOVING

1. Disconnect the wiring harness from the brake control.
2. To test the brakelight switch, connect one tester lead to the #1 terminal; then connect the other lead to the #4 terminal.

Fig. 6-1



727-650A

3. With the brake lever compressed, the meter must read resistance. With the brake lever released, the meter must read no resistance. If the meter does not read as specified, the brakelight switch is defective and must be replaced.
4. To remove the switch, use a small screwdriver to compress the plastic locking tabs by pushing in on the tabs; then slide the switch free of the brake control.

Fig. 6-2



AF201D

### INSTALLING

1. Slide the brakelight switch into the brake control assembly until the self-locking tabs snap into position. Give the switch body a light pull to make sure the switch is properly secured.
2. Connect the switch harness to the main wiring harness. Position the wires so they will not be either pinched or come in contact with any moving components. Start the engine and check the switch for proper operation.

## Brakelight Switch (Mechanical System)

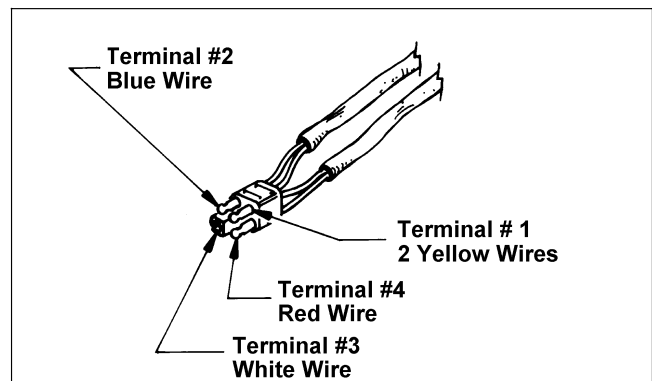
### TESTING / REMOVING

1. Disconnect the wiring harness from the brake control.

Terminal	Corresponding Wire Color	Wire Usage
1	Yellow	Power Supply
2	Blue	Headlight - High Beam
3	White	Headlight - Low Beam
4	Red	Brakelight

2. Connect one tester lead to the #1 terminal; then connect the other lead to the #4 terminal.

Fig. 6-3



727-650A

3. With the brake lever compressed, the meter must read less than 1 ohm of resistance. With the brake lever released, the meter must read no resistance. If the meter does not read as specified, the brakelight switch is defective and must be replaced.

4. Use a small screwdriver to compress the plastic locking tabs by pushing in on the tabs; then slide the switch free of the brake control.

Fig. 6-4



AF907D

## INSTALLING

1. Slide the brakelight switch into the brake control assembly until the self-locking tabs snap into position. Give the switch body a light pull to make sure the switch is properly secured.
2. Connect the switch harness to the main wiring harness. Position the wires so they will not be either pinched or come in contact with any moving components. Start the engine and check the switch for proper operation.

# Headlight Dimmer Switch

## TESTING

1. Disconnect the headlight dimmer switch plug (located next to the air-intake silencer).
2. Use the tester connections indicated in the following chart. If the meter does not read as specified, the headlight dimmer switch is defective and must be replaced.

Position	Lead to Terminal (Wire Color)	Lead to Terminal (Wire Color)	Meter Reading
High Beam	1 (Yellow)	2 (Blue)	Less than 1 ohm
High Beam	1 (Yellow)	3 (White)	OL
Low Beam	1 (Yellow)	2 (Blue)	OL
Low Beam	1 (Yellow)	3 (White)	Less than 1 ohm

## REMOVING

1. Remove the handlebar pad.
2. Remove the screws from the cover plate securing the dimmer switch.

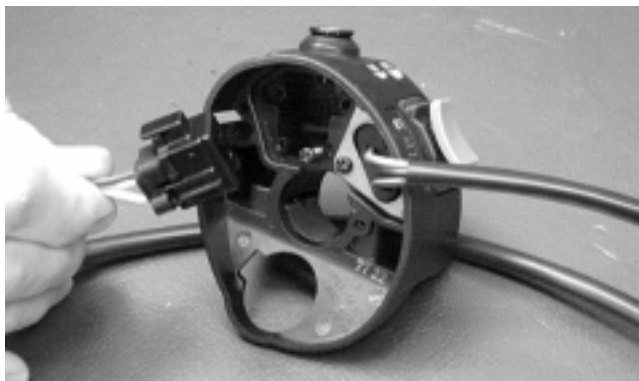
Fig. 6-5



AF908D

3. Remove the plate and lift the switch free of the control.

Fig. 6-6



AF909D

## INSTALLING

1. Place the dimmer switch into the control and secure with the cover plate and screws.
2. Connect the four-prong plug; then install and secure the handlebar pad.

## Testing Handlebar Warmer Elements

1. Remove the handlebar pad; then disconnect the handlebar warmer three-wire connector.
2. In the element connector, connect the ohmmeter between the green/white and yellow lead wires.
3. The meter must read between 7.4 and 9 ohms.
4. In the element connector, connect the ohmmeter leads between the green/black and yellow lead wires.
5. The meter must read between 12.5 and 15.5 ohms.
6. Replace any element measuring less than or more than the specified amount.
7. Connect the leads; then install and secure the handlebar pad.

## Testing Thumb Warmer Element

1. Remove the handlebar pad; then disconnect the thumb warmer three-wire connector.
2. In the element connector, connect one ohmmeter lead to the green/white lead; then connect the other ohmmeter lead to the yellow lead.
3. The meter must read between 1.7 and 6.7 ohms.
4. In the element connector, connect one ohmmeter lead to the green/black lead; then connect the other ohmmeter lead to the yellow lead.
5. The meter must read between 7 and 17 ohms.

■ **NOTE:** If either test is not within specifications, replace the thumb warmer element.

6. Connect the leads; then install and secure the handlebar pad.

## Testing Handlebar Warmer Switch (ON/OFF Function)

1. Remove the handlebar pad.
2. Disconnect the handlebar warmer two-wire connector.
3. In the switch connector, connect the ohmmeter leads to each terminal.
4. With the switch in the OFF position, the meter must read an open circuit. With the switch in the ON position, the meter must read 1 ohm or less resistance.
5. Connect the leads; then install and secure the handlebar pad.

## Testing Handlebar Warmer Switch (HI/OFF/LO Function)

1. Remove the handlebar pad.
2. Disconnect the handlebar warmer three-wire connector.
3. In the switch connector, connect the ohmmeter leads to the green/white and yellow lead wires.
4. With the switch in the OFF (middle) position, the meter must read an open circuit. With the switch in the HI position, the meter must read 1 ohm or less resistance.
5. In the switch connector, connect the ohmmeter leads to the green/black and yellow leads.
6. With the switch in the OFF (middle) position, the meter must read an open circuit. With the switch in the LO position, the meter must read 1 ohm or less resistance.
7. Connect the leads; then install and secure the handlebar pad.

## **Testing Thumb Warmer Switch (OFF/ON Function)**

1. Remove the handlebar pad.
2. Disconnect the thumb warmer two-wire connector.
3. In the switch connector, connect the ohmmeter leads to each terminal.
4. With the switch in the OFF position, the meter must read an open circuit. With the switch in the ON position, the meter must read 1 ohm or less resistance.
5. Connect the leads; then install and secure the handlebar pad.

## **Testing Thumb Warmer Switch (HI/OFF/LO Function)**

1. Remove the handlebar pad.
2. Disconnect the thumb warmer three-wire connector.
3. In the switch connector, connect one ohmmeter lead to the green/white lead; then connect the other ohmmeter lead to the yellow lead.
4. With the switch in the OFF (middle) position, the meter must read an open circuit. With the switch in the HI position, the meter must read 1 ohm or less resistance.

5. In the switch connector, connect one ohmmeter lead to the green/black lead; then connect the other ohmmeter lead to the yellow lead.
6. With the switch in the OFF (middle) position, the meter must read an open circuit. With the switch in the LO position, the meter must read 1 ohm or less.
7. Connect the leads; then install and secure the handlebar pad.

## **Testing Passenger Handwarmer Switch**

1. Disconnect the lead wires from the switch.
2. Connect the ohmmeter leads to each of the lead wires.
3. With the switch in one position, the meter must read OL (infinite resistance).
4. When the switch is moved to the other position, the meter must read less than 1 ohm of resistance.

## **Testing Passenger Handwarmer Elements**

■ **NOTE:** During this test, resistance will vary due to temperature; therefore, this test should be made at room temperature of 20° C (68° F).

1. Disconnect the lead wires from the main wiring harness.
2. Connect one ohmmeter lead to the green/white wire from the element; then connect the other ohmmeter lead to the yellow wire from the element.
3. The meter must read between 9.8-13.8 ohms.

## Wire Color Code and Function Description

■ **NOTE:** The following wire color code and function description will assist in using the Main Harness and Hood Harness wiring diagrams in this section. Note that some colors are numbered. When a numbered color appears on either of the wiring diagrams, refer to this color code description page, and it will provide you with additional information.

COLOR	FUNCTION — DESCRIPTION
<b>Brown</b>	<b>Electrical Common; Chassis Ground</b>
	The brown wire is connected to the chassis at the engine stator plate and also through the voltage regulator chassis bolt (prior to 1989, the taillight harness also had a chassis connection). The headlight bracket is grounded on some models to reduce the bracket RFI emissions. All brown wires are common ground.
<b>Yellow</b>	<b>AC Power; 13 Volts AC (Alternating Current)</b>
	The yellow wire is connected to the engine stator plate lighting coil and the voltage regulator. The voltage produced by the lighting coil is very engine RPM dependent. The voltage regulator is necessary to maintain 13.5 VAC on the yellow wire whenever the engine exceeds about 3000 RPM. All yellow wires are 13 VAC. The signal on the yellow wire is AC. Not only is the voltage level of this signal RPM dependent, but the signal frequency (cycles per second) is RPM dependent as well. The electric tachometer uses this changing frequency phenomenon to indicate the engine RPM. An electric tachometer will operate properly when connected to any yellow (13 VAC) and brown (common ground) wire pair.
<b>White</b>	<b>Headlight Low Beam</b>
	The white wire connects the dimmer switch to the headlight bulb. The low beam filament will illuminate when the dimmer switch connects the white wire to 13 VAC power.
<b>Blue</b>	<b>Headlight High Beam and Indicator Light</b>
	The blue wire connects the dimmer switch to the headlight bulb. The high beam will illuminate when the dimmer switch connects the blue wire to 13 VAC power. Some models use a tachometer with a high beam indicator light. The high beam indicator light will also illuminate when the dimmer switch connects the blue wire to 13 VAC power.
<b>Green</b>	<b>Handlebar Warmer Indicator Light</b>
	Some models use a tachometer with a handlebar warmer indicator light. The green wire connects the handlebar warmer switch to the "warmer" indicator light. The "warmer" light will illuminate when the handlebar warmer switch connects the green wire to common ground.

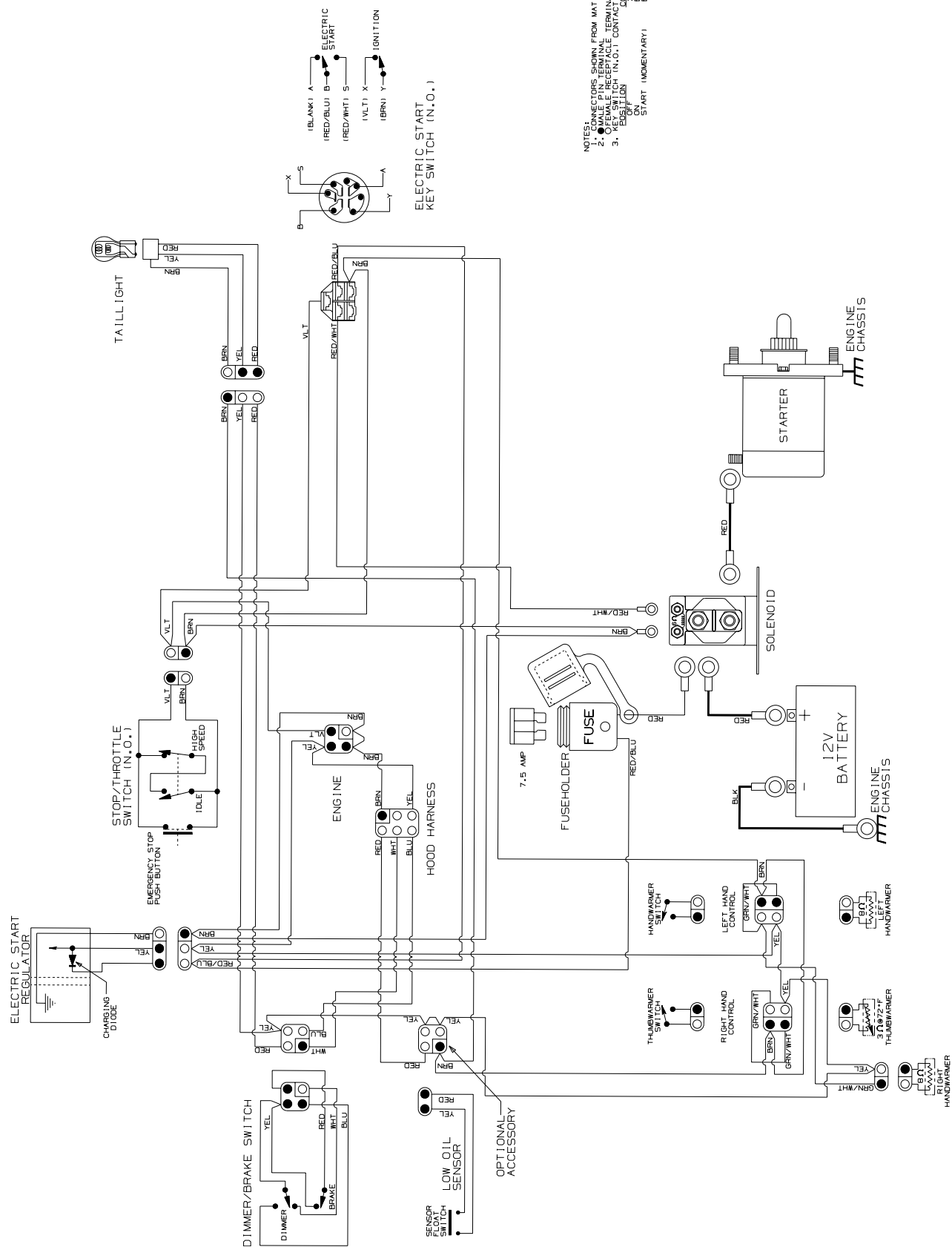
COLOR	FUNCTION — DESCRIPTION
<b>Violet or Black (NOI)</b>	<b>Ignition System "Shut-Off"</b>
	The violet or black wire connects the ignition system CDI module to the throttle control switches. Ignition spark is interrupted when any of the switches close, connecting the violet or black wire to a common ground.
<b>Black/Red</b>	<b>Ignition System "Shut-Off"</b>
	The black/red wire connects the throttle control switches to the ignition switch. "Spark" occurs when the black/red is at a common ground level and "spark" stops when the black/red wire is open (not connected to common ground).
<b>Red/White #1</b>	<b>High Temperature Warning Light</b>
	Some models use a speedometer with a high temperature warning light. The red/white #1 wire connects the high temperature sensor to the temperature warning light. The "temp" light will illuminate when the sensor connects the red/white #1 wire to common ground.
<b>Red/White #2</b>	<b>Solenoid Coil Power</b>
	The red/white #2 wire connects the ignition switch (12 volt DC) power to the solenoid. The solenoid will activate when the ignition switch connects the red/white #2 wire to the + 12 VDC battery power.
<b>Red #1</b>	<b>Brakelight</b>
	The red #1 wire connects the brake control assembly switch to the brakelight filament. The brakelight will illuminate when the brake switch connects the red #1 wire to 13 VAC power.
<b>Red #2</b>	<b>Electric Start Battery Power; 12 Volts DC (Direct Current)</b>
	The red #2 wire connects the battery positive post (+12 VDC) to the ignition switch through the fuse holder. All electric start red #2 wires are +12 VDC. If the fuse "blows," all red #2 wires are disconnected from the battery and battery charging (via the charging diode) discontinues until the fuse is replaced.
<b>Red #3</b>	<b>Low Oil Warning Light</b>
	The red #3 wire connects the low oil sensor to the "oil" warning light. The "oil" light will illuminate when the sensor connects the red #3 wire to 13 VAC power.
<b>Gray</b>	<b>Electric Fuel Level Gauge</b>
	Some models are equipped with an electric fuel level gauge. The gray wire connects the in-tank resistive sensor to the gauge. As the fuel level rises, the sensor resistance decreases, and the gauge needle rises; conversely, as the fuel level goes down, the sensor resistance increases, and the gauge needle drops.
<b>Orange</b>	<b>Reverse Alarm</b>
	Some models are equipped with a reverse gear and reverse alarm. The orange wire connects the reverse switch to the reverse alarm. The reverse alarm will "beep" when the switch connects the orange wire to 13 VAC power.

## 2000 Wiring Diagrams

This chart is designed to direct the technician to the appropriate Main Harness Wiring Diagram and Hood Harness Wiring Diagram. Select the snowmobile from the chart to determine the correct diagram.

Snowmobile Models	Main Harness	Hood Harness	Snowmobile Models	Main Harness	Hood Harness
Bearcat 340	D	I	Z 370	L (es A)	IV
Bearcat 440 I	D	I	Z 440	M (es A)	IV
Bearcat 440 II	E	I	ZL 440	N	IV
Bearcat W/T	F	III	ZL 500	O	IV
Pantera 580 EFI	I	V	ZL 500 EFI	G	IV
Pantera 1000	J	V	ZL 550	P	IV
Panther 340	A	I	ZL 580 EFI	I	IV
Panther 440	B	I	ZL 600	H	IV
Panther 550	C	II	ZL 600 EFI	G	IV
Powder Special 500 EFI	G	IV	ZL 700	H	IV
Powder Special 500 EFI LE	G	IV	ZR 500	O	IV
Powder Special 600	H	IV	ZR 500 EFI	G	IV
Powder Special 600 LE	H	IV	ZR 600	H	IV
Powder Special 600 EFI	G	IV	ZR 600 EFI	G	IV
Powder Special 600 EFI LE	G	IV	ZR 600 EFI LE (Clicker)	G	IV
Powder Special 700	H	IV	ZR 600 EFI LE (Reverse)	Q	IV
Powder Special 700 LE	H	IV	ZR 700	H	IV
Thundercat	T	IV	ZR 700 LE (Clicker)	H	IV
Thundercat M/C	T	IV	ZR 700 LE (Reverse)	R	IV
Triple Touring 600	K	IV	ZRT 600	S	IV
			ZRT 800	T	IV

## Harness A

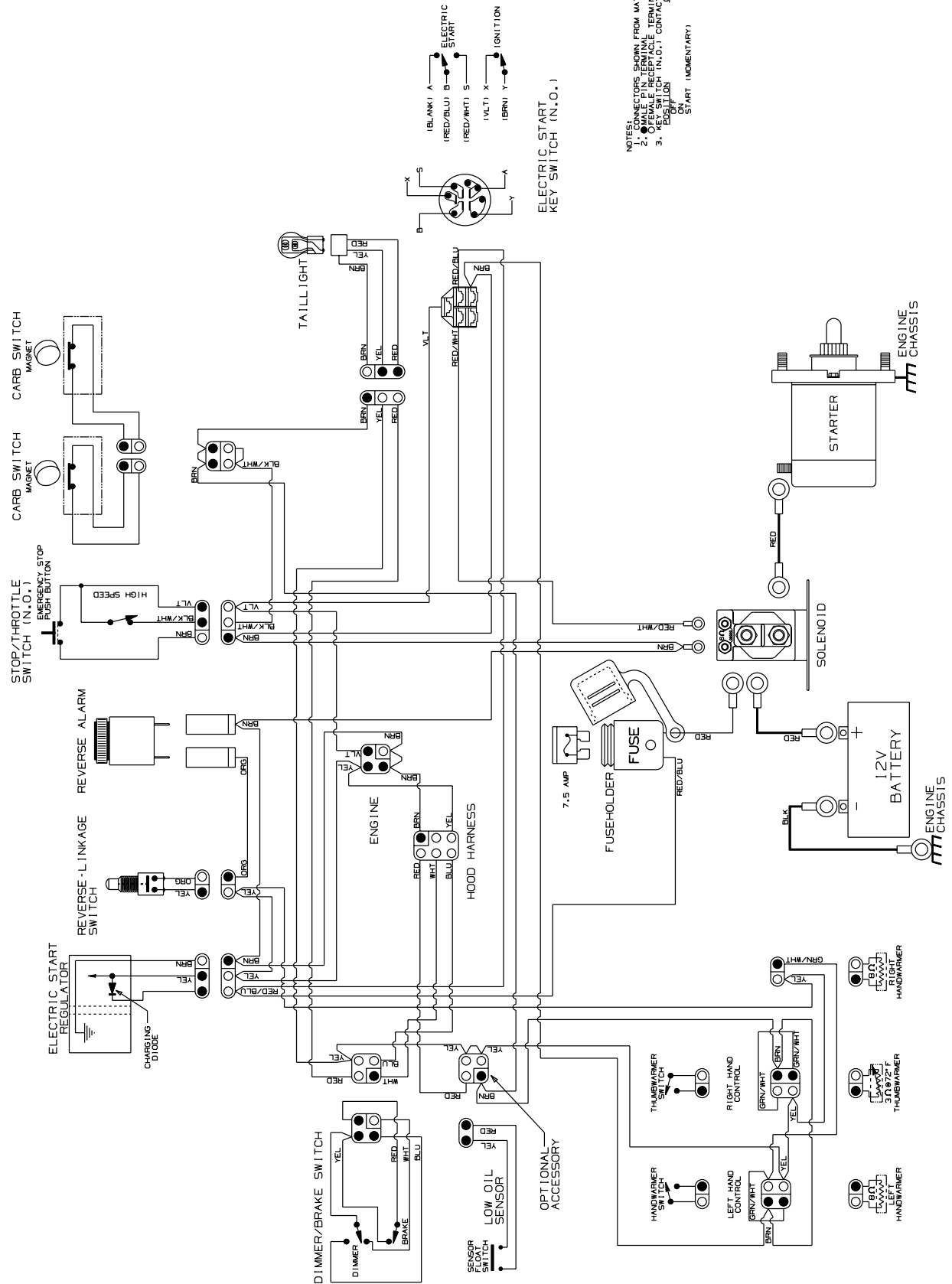


NOTES:

1. CONNECTORS SHOWN FROM MATING SURFACE SIDE.
2. ● MALE PIN TERMINAL OF FEMALE RECEPTACLE
3. KEY SWITCH (N.O.) CONTACT CLOSURES AS FOLLOWS:

POSITION	CONTACT
ON	X-Y
START (MOMENTARY)	B-A
	B-S

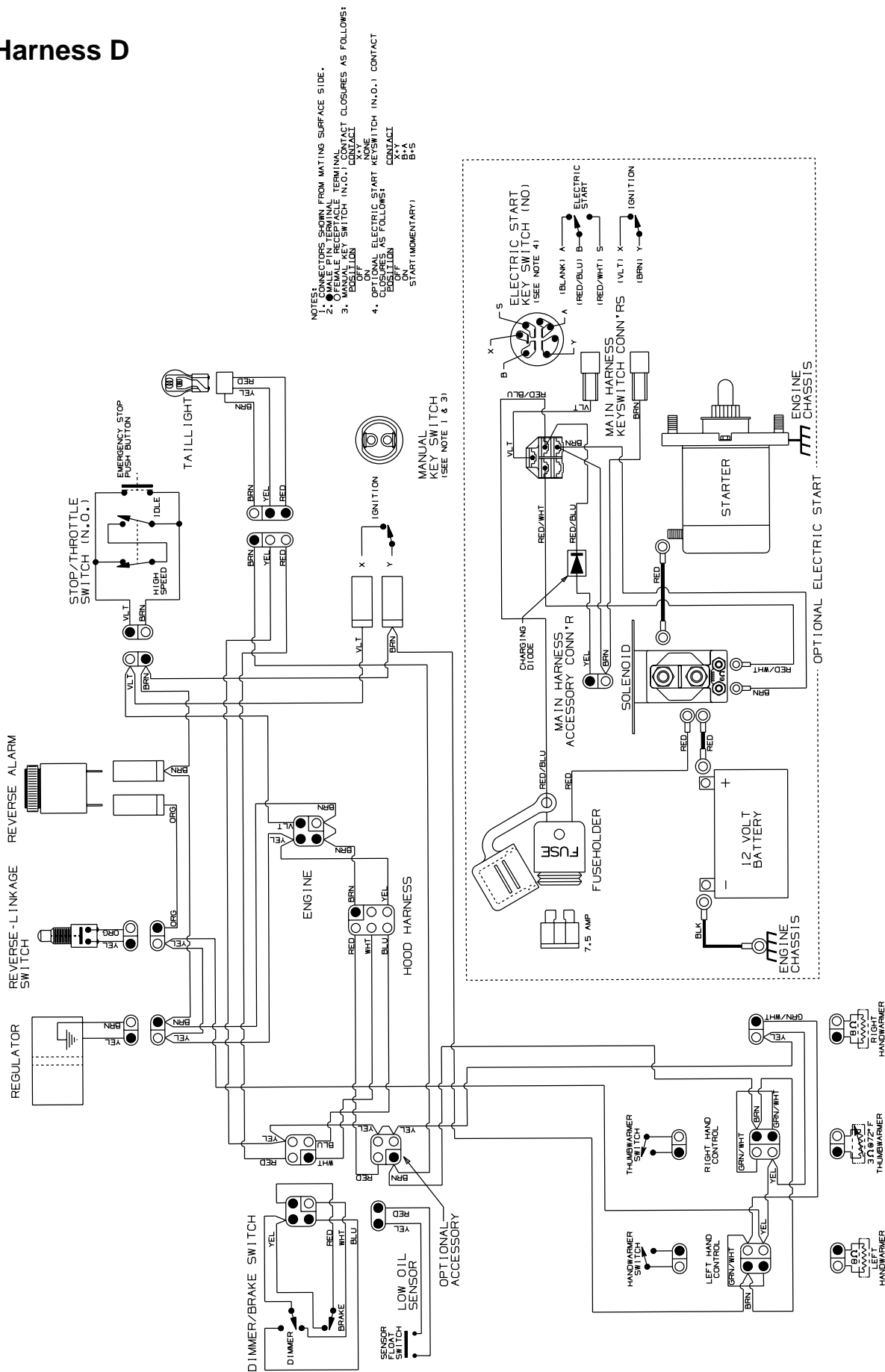
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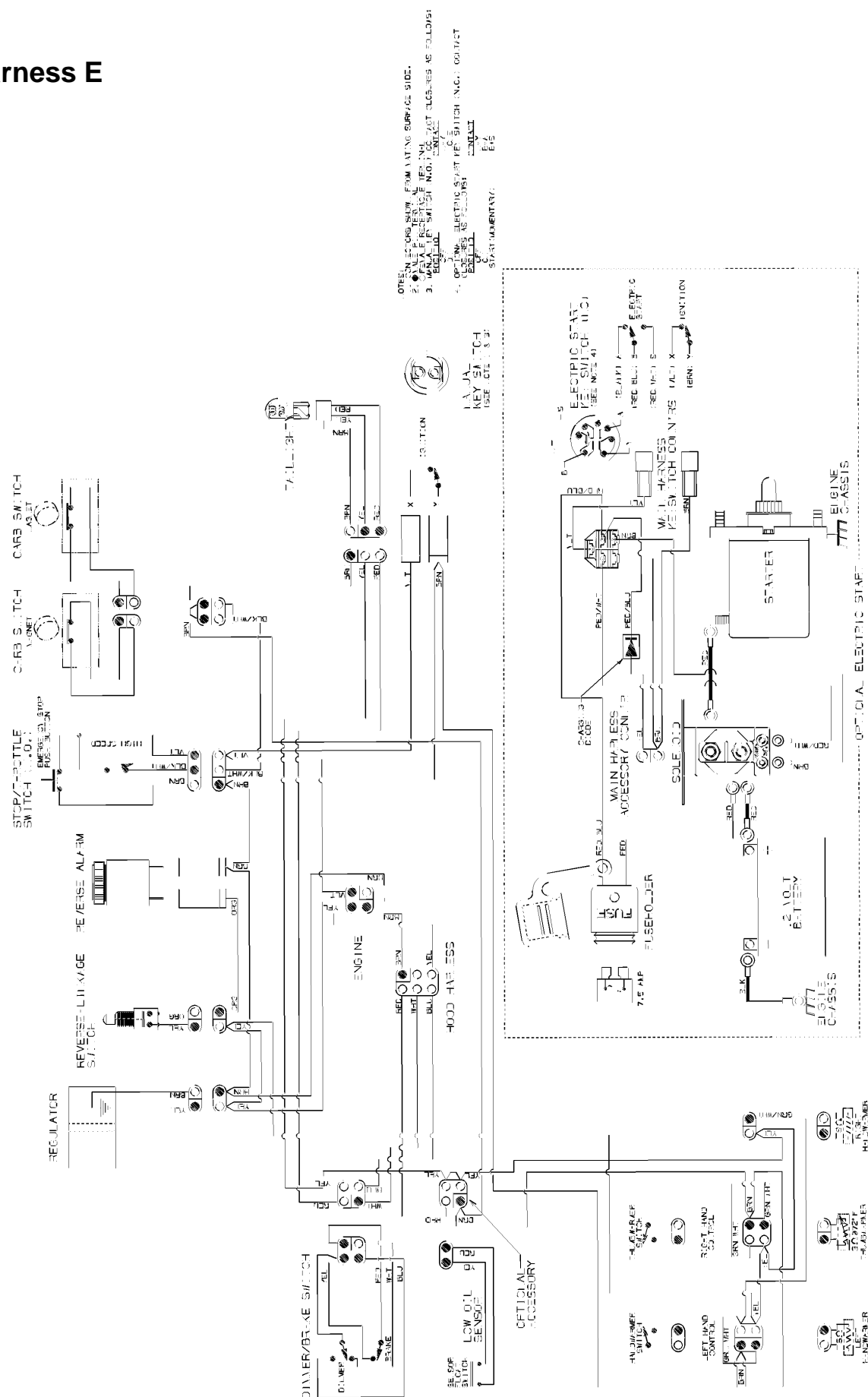
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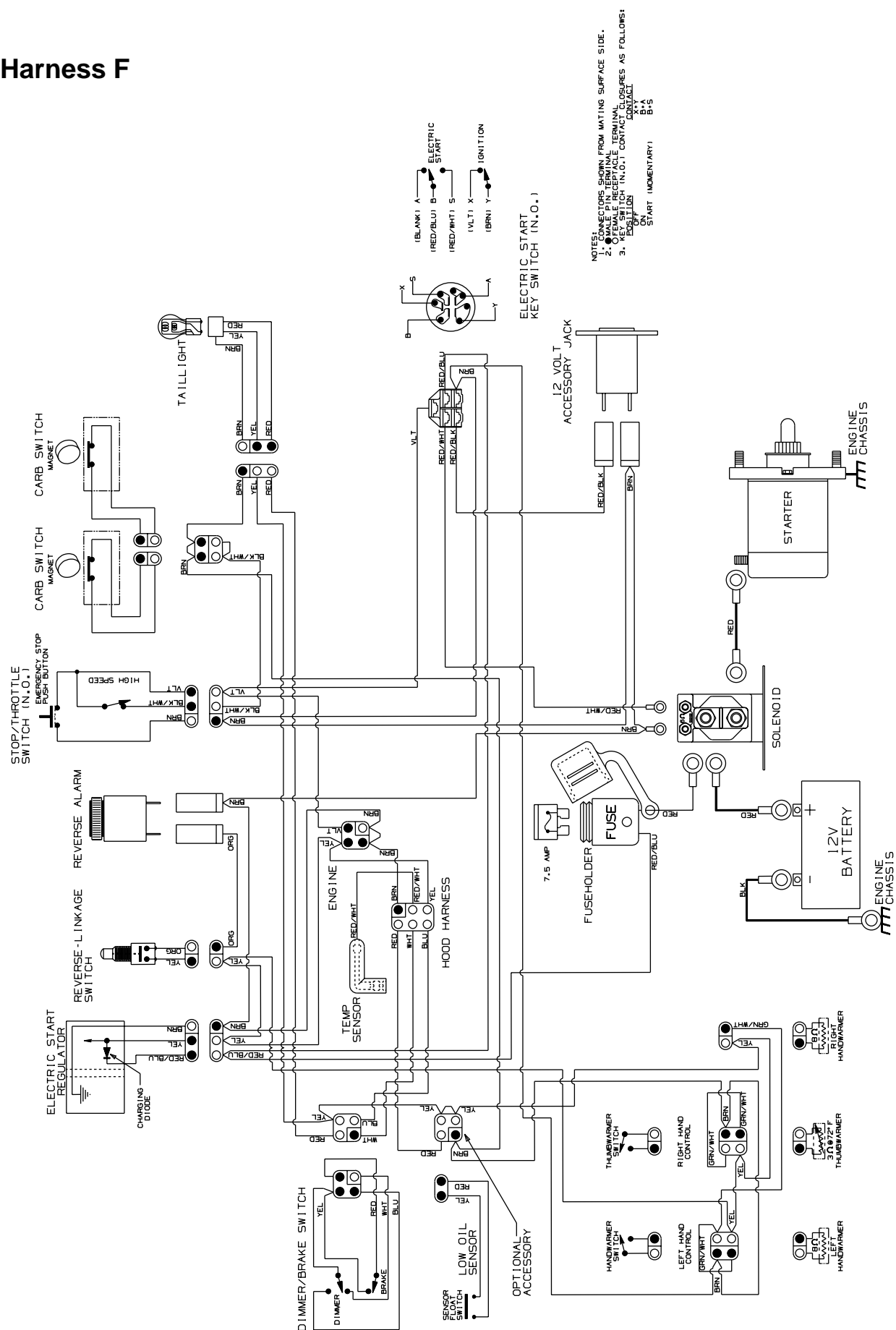


Harness E

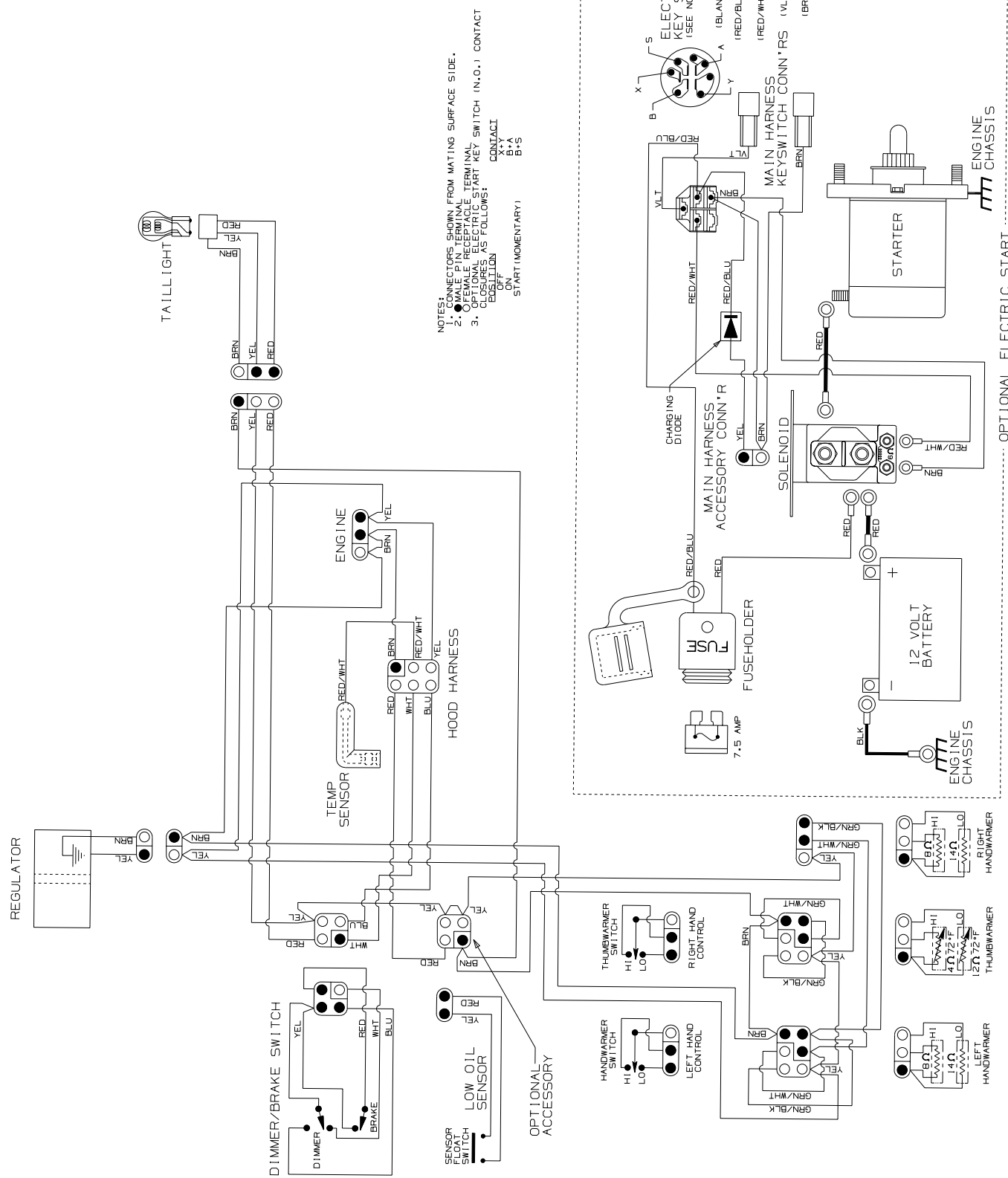


- 1. OTHER CONNECTIONS FROM MAIN SURFACE SIDE.
- 2. OFF-BOARD REVERSE LIGHTS AND OTHER LIGHTS AS FOLLOWS:
- 3. MAIN HARNESS SWITCH (SEE NOTE 4)
- 4. STOP/START SWITCH (SEE NOTE 4)
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- 100. STOP/START SWITCH (SEE NOTE 4)

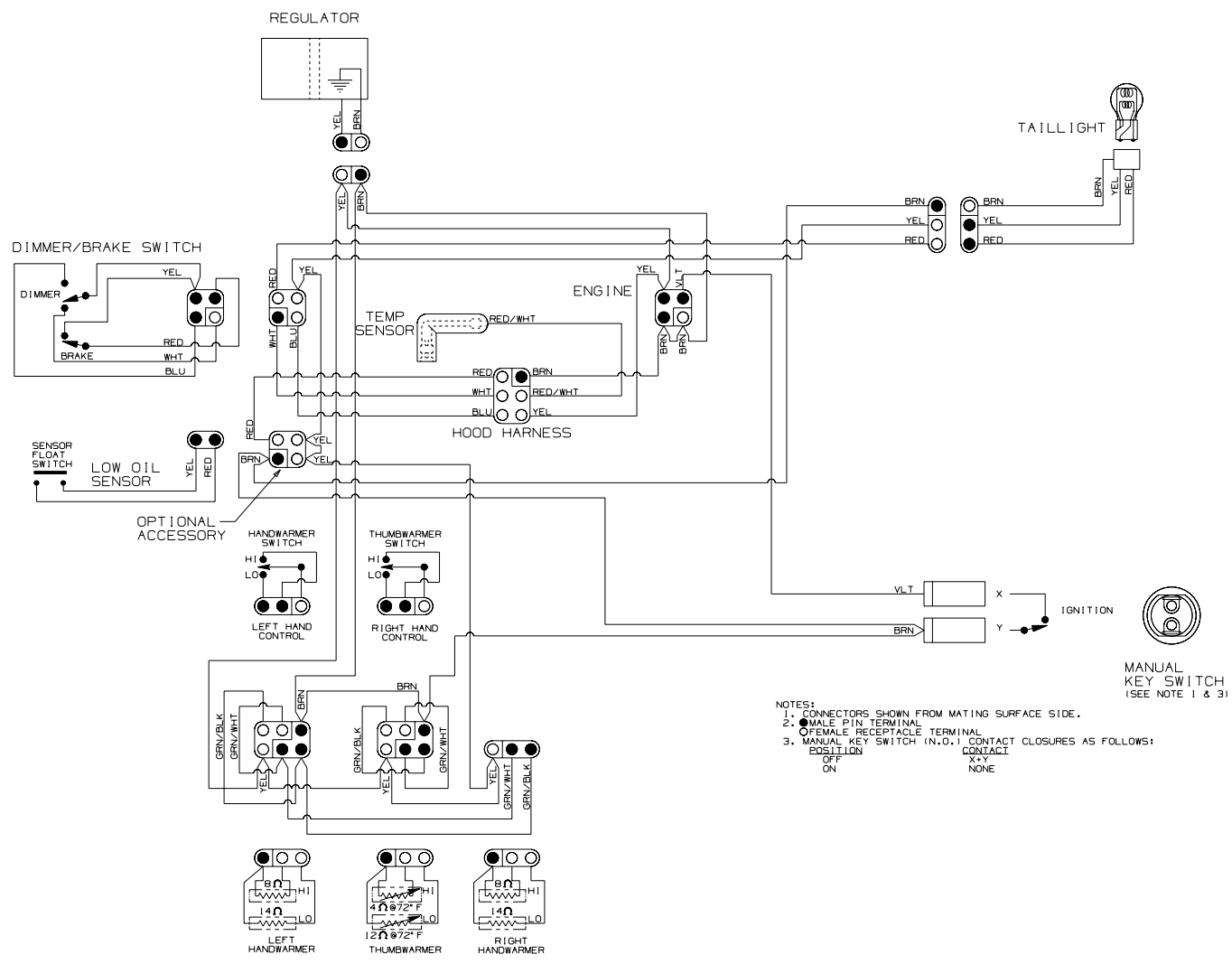
Harness F



Harness G



Harness H

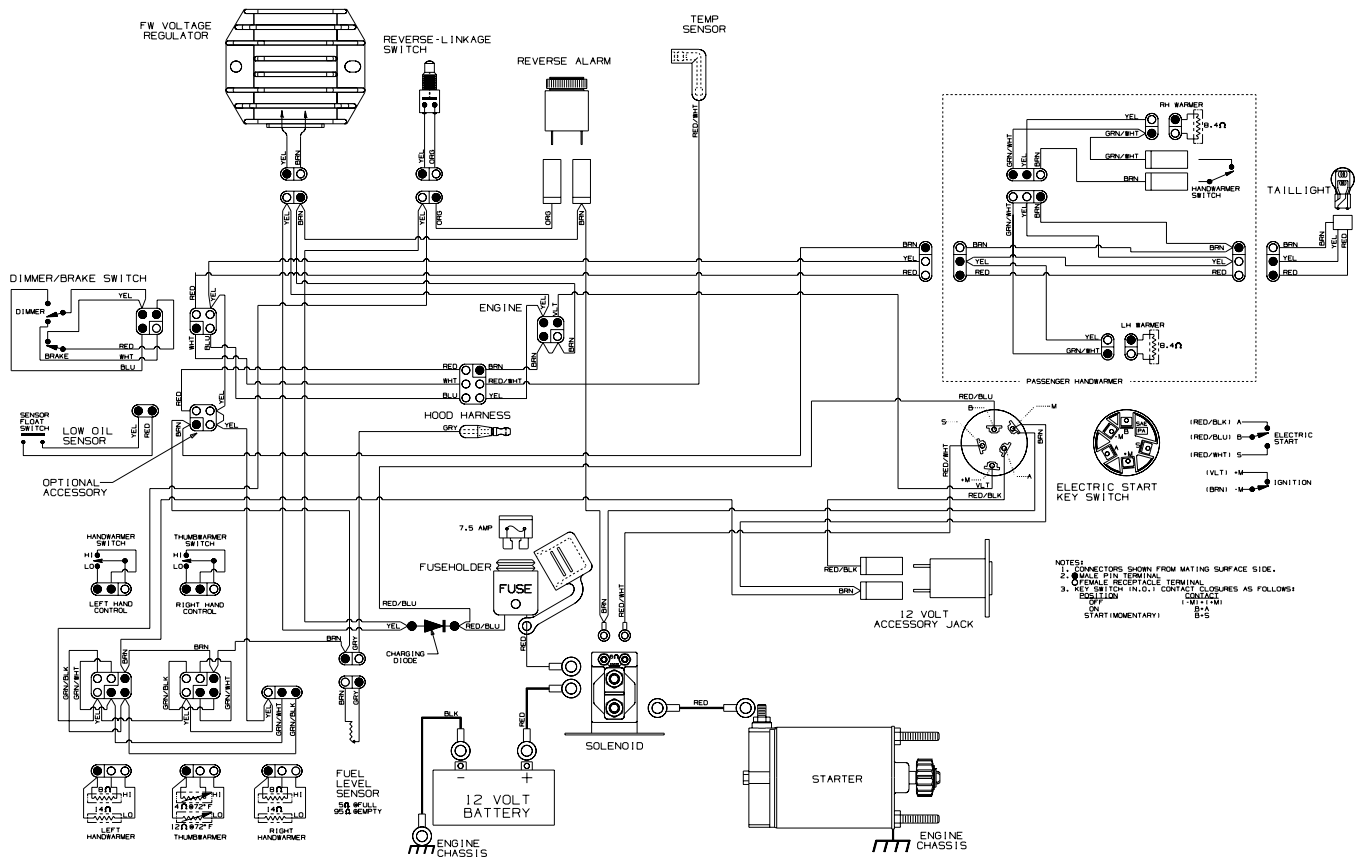


NOTES:  
1. CONNECTORS SHOWN FROM MATING SURFACE SIDE.  
2. ● MALE PIN TERMINAL  
○ FEMALE RECEPTACLE TERMINAL  
3. MANUAL KEY SWITCH (N.O.) CONTACT CLOSURES AS FOLLOWS:  
POSITION CONTACT  
OFF X+Y  
ON NONE

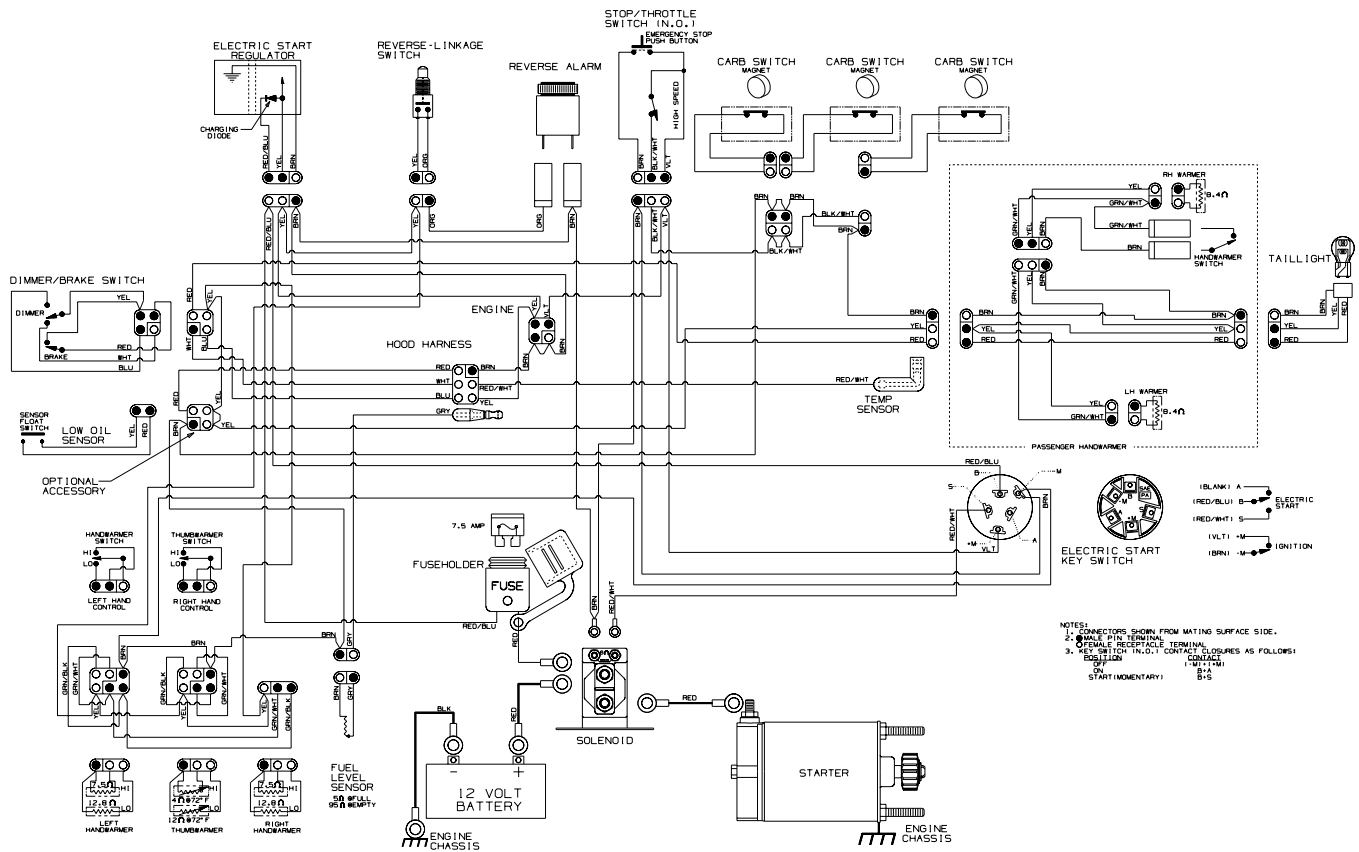
## 6



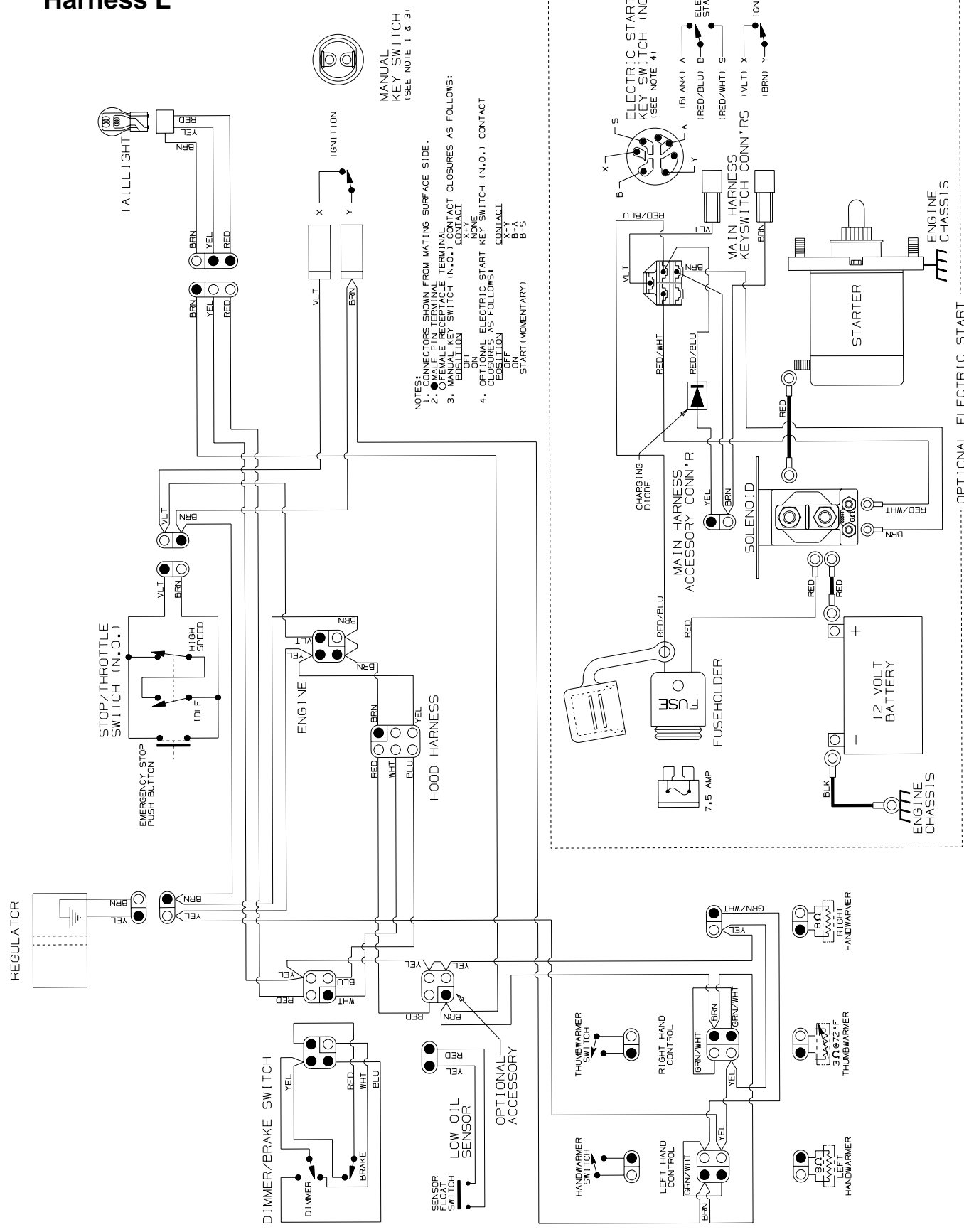
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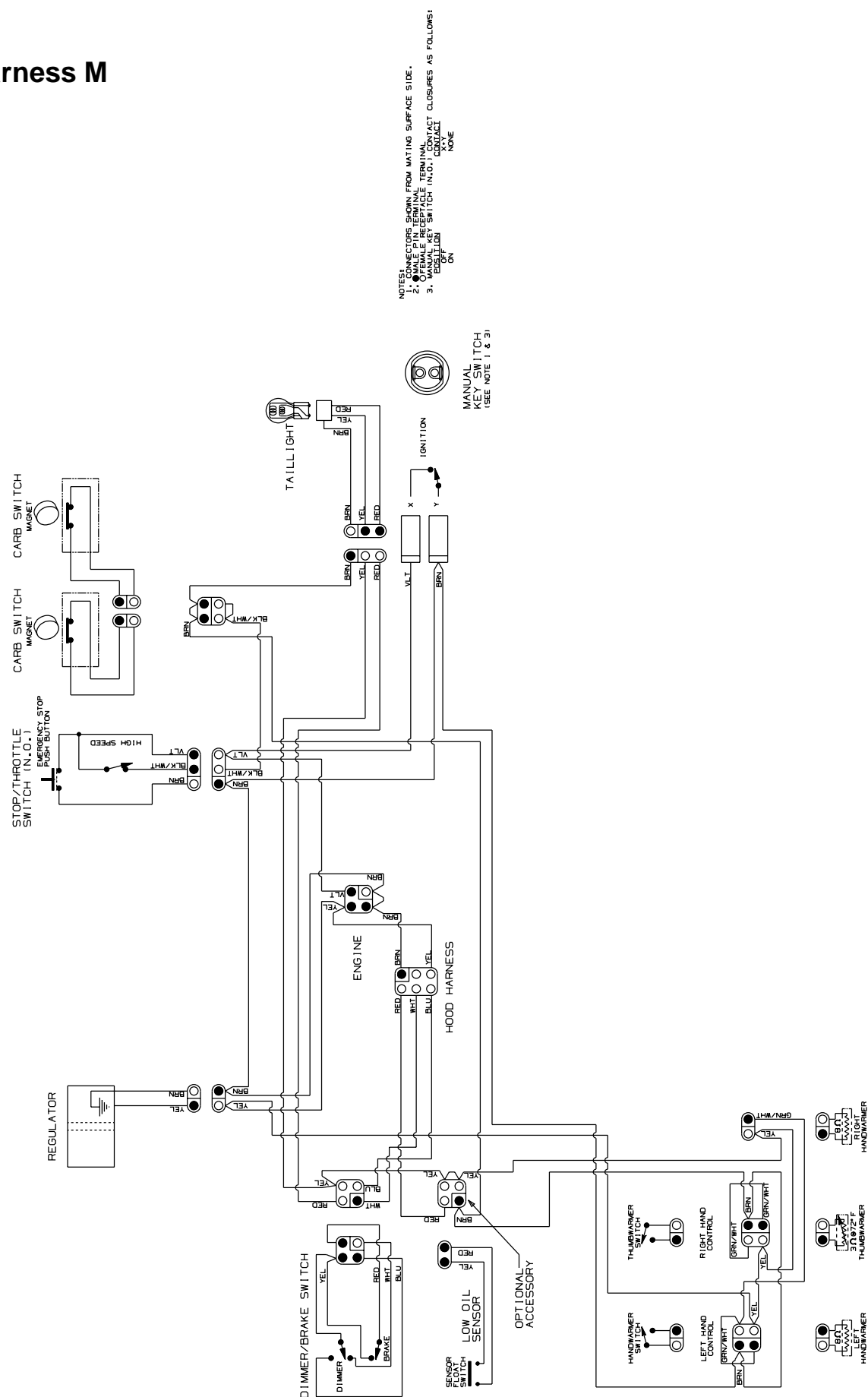
# Harness K



Harness L



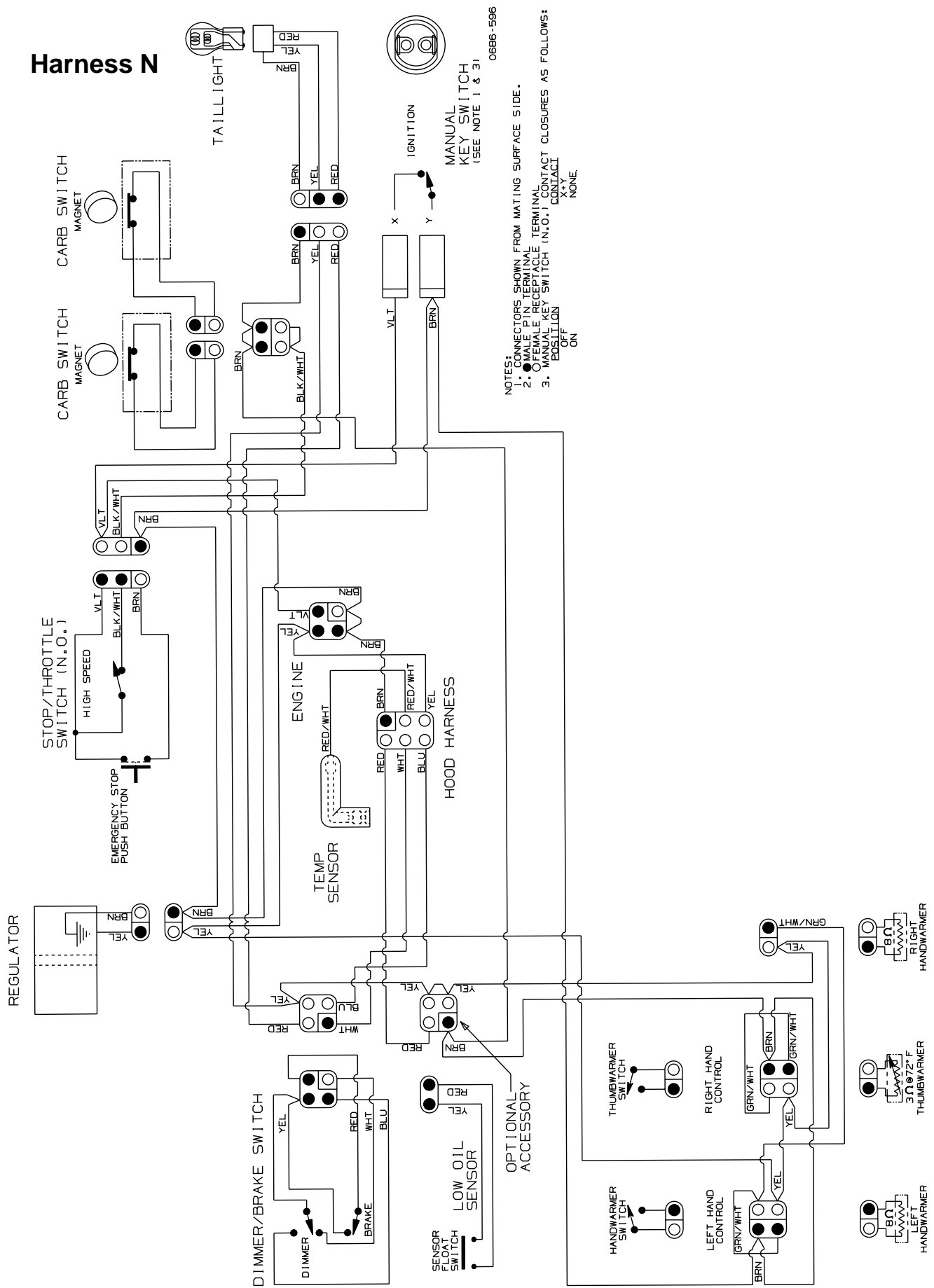
Harness M



NOTES:  
1. CONNECTORS SHOWN FROM MATING SURFACE SIDE.  
2. MADET TERMINAL IS USED FOR OFF-VEHICLE RECEPTACLE TERMINAL.  
3. MADET SWITCH IN-OFF POSITION CONTACT CLOSURES AS FOLLOWS:  
OFF  
ON  
NONE

MANUAL  
REVERSE SWITCH  
(SEE NOTE 1 & 3)

# Harness N

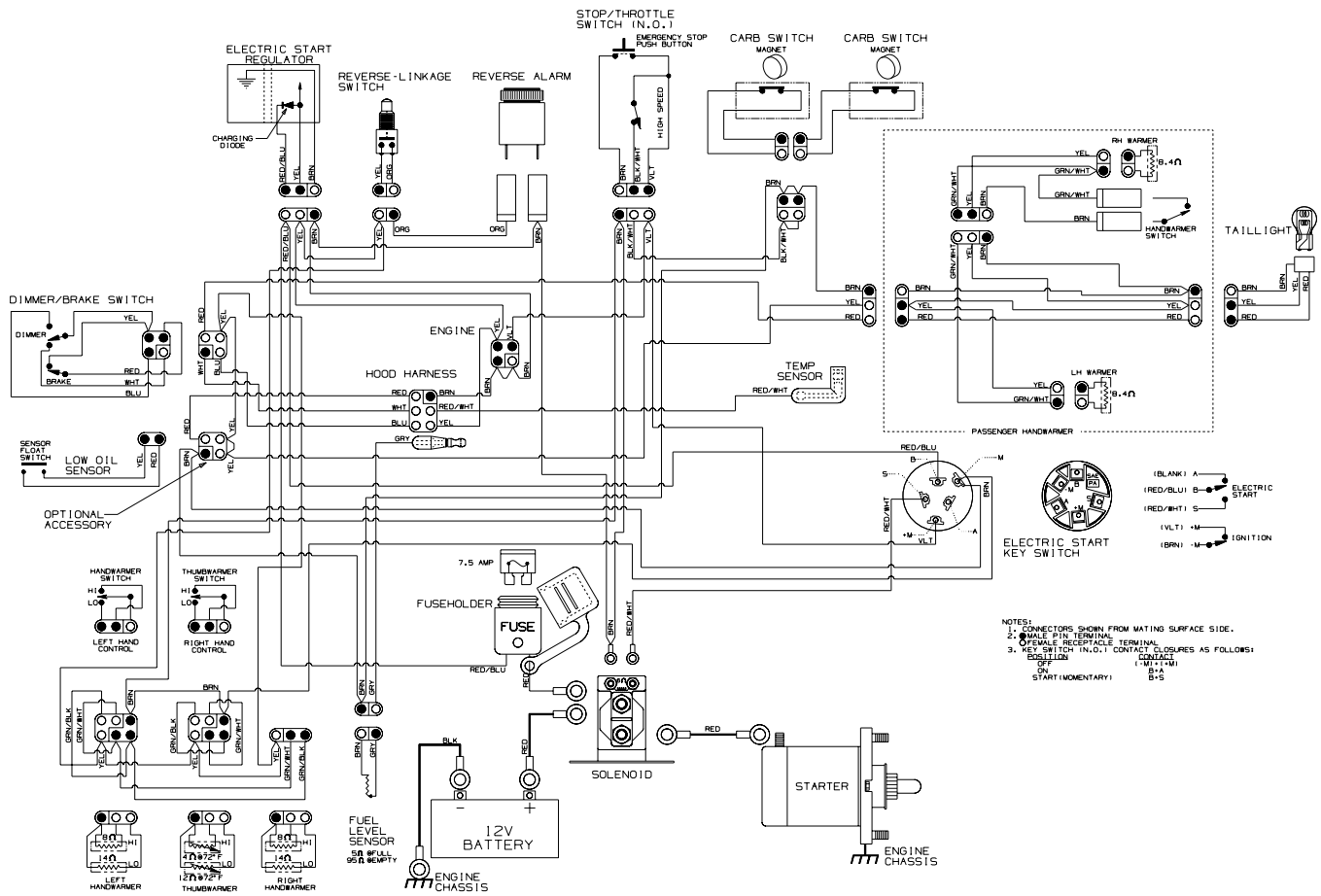


**NOTES:**

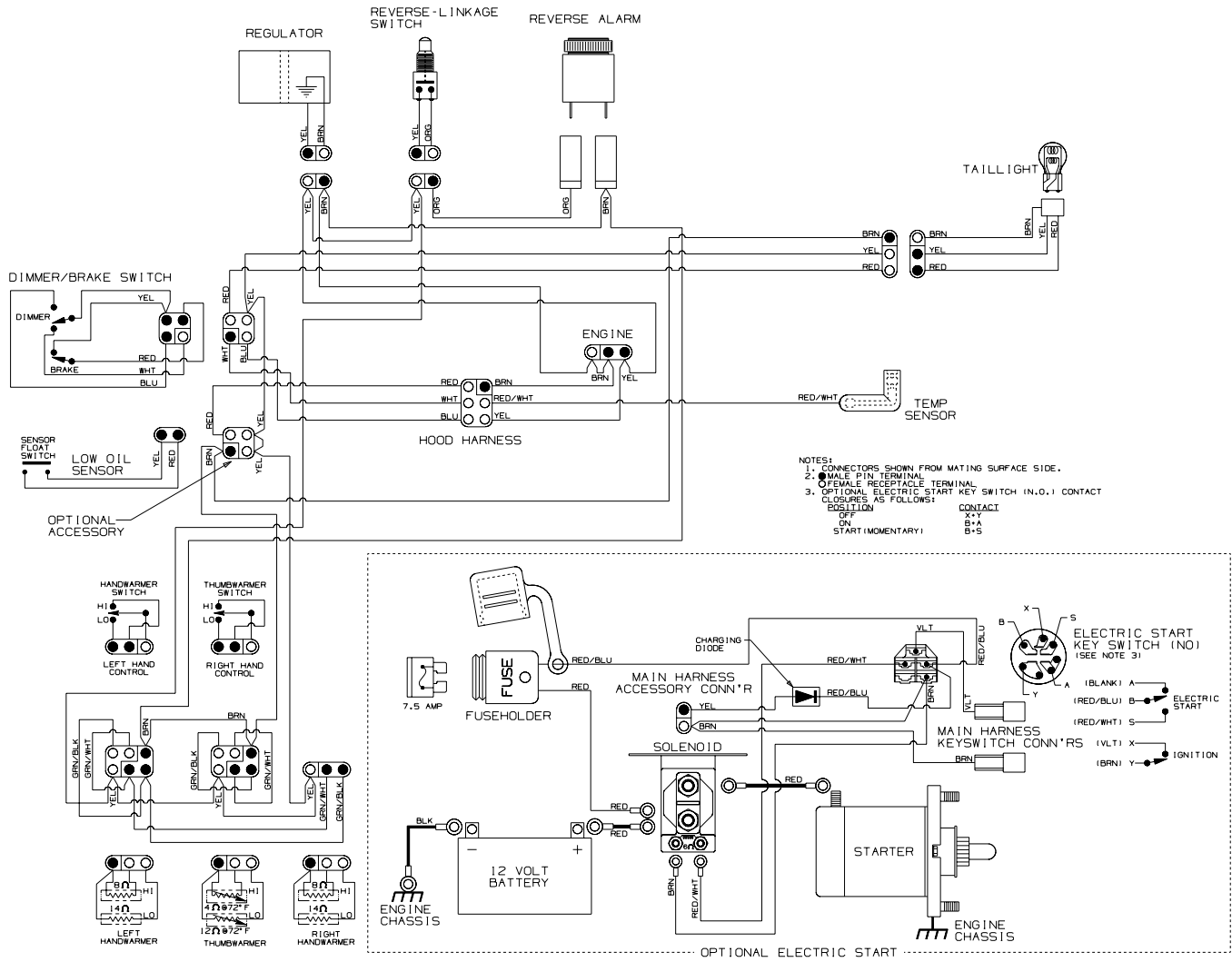
1. CONNECTORS SHOWN FROM MATING SURFACE SIDE.
2. MALE PIN TERMINAL POSITIONS ARE AS SHOWN.
3. MANUAL KEY SWITCH (N.O.) CONTACT CLOSURES AS FOLLOWS:  
ON POSITION  
OFF POSITION  
START MOMENTARY
4. OPTIONAL ELECTRIC START KEY SWITCH (N.O.) CONTACT CLOSURES AS FOLLOWS:  
ON POSITION  
OFF POSITION  
START MOMENTARY

**OPTIONAL ELECTRIC START**

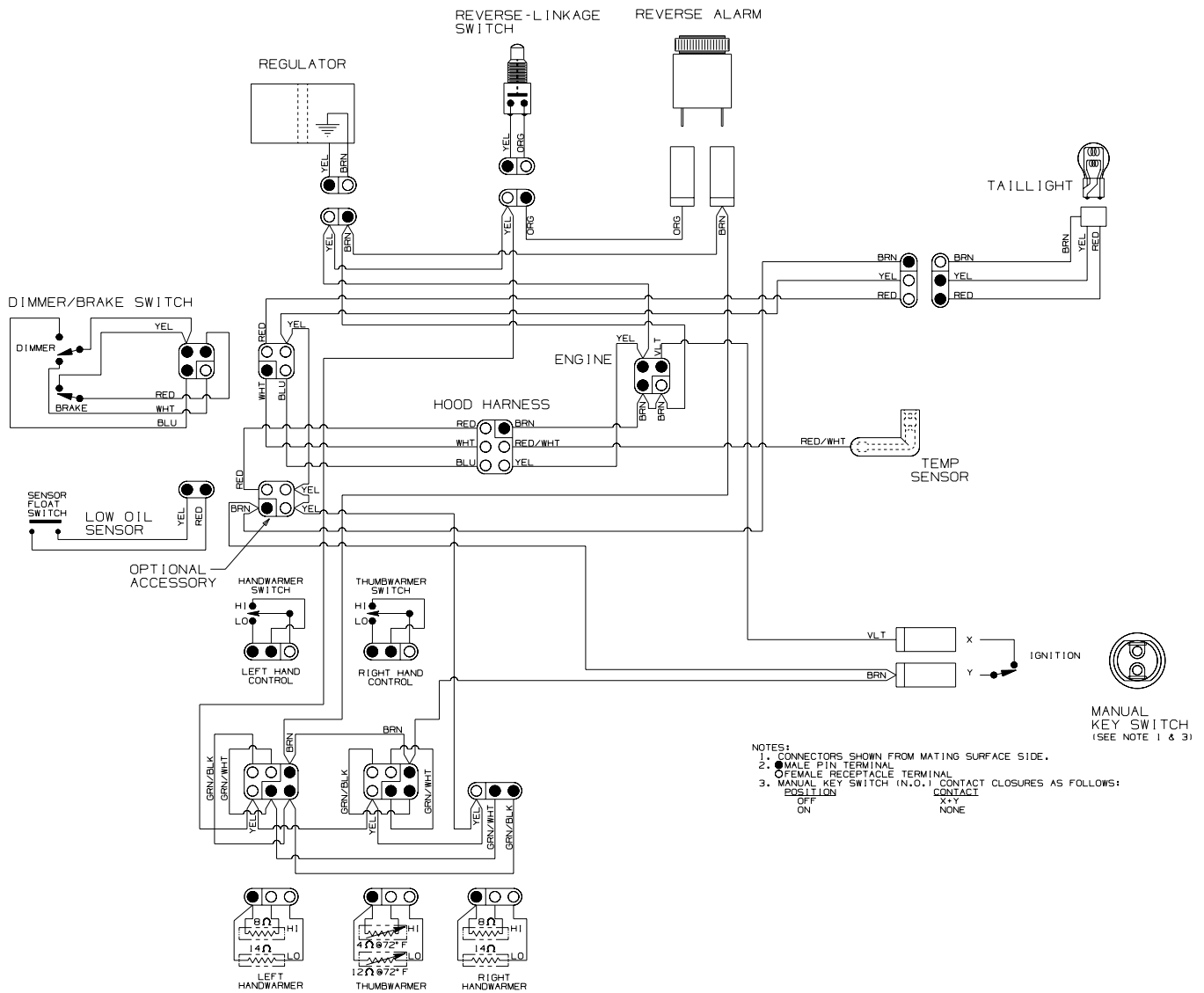
# Harness P



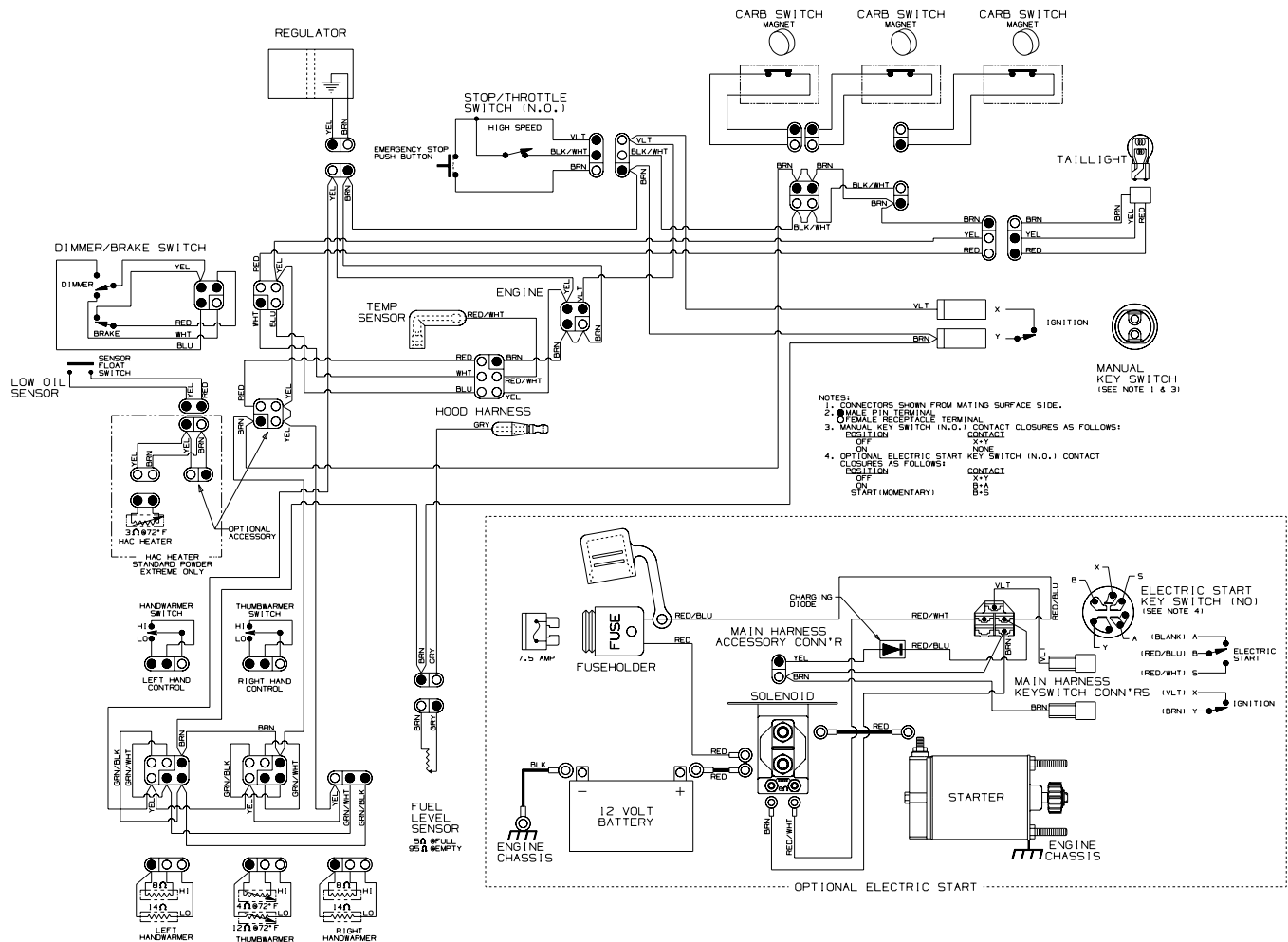
# Harness Q



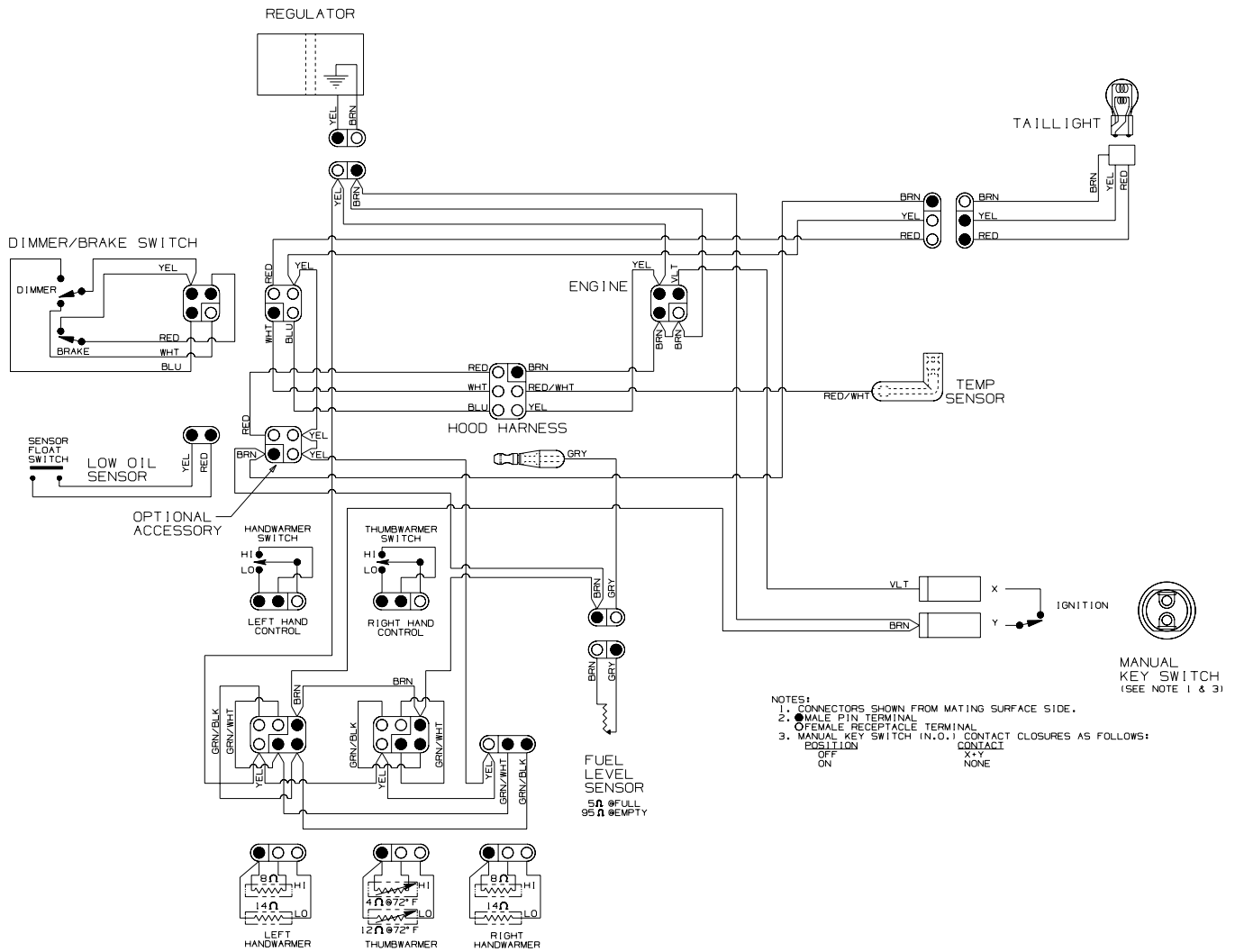
# Harness R



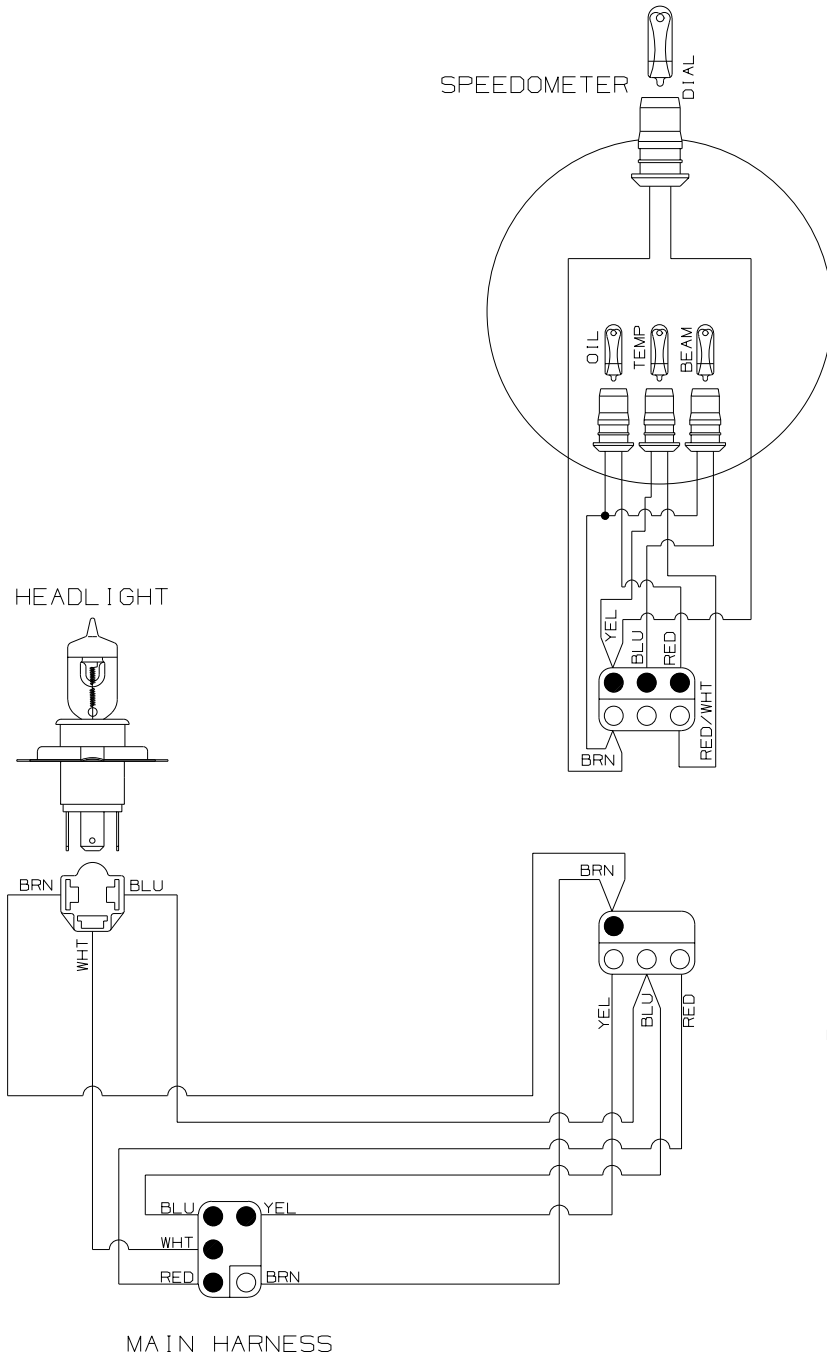
# Harness S



# Harness T

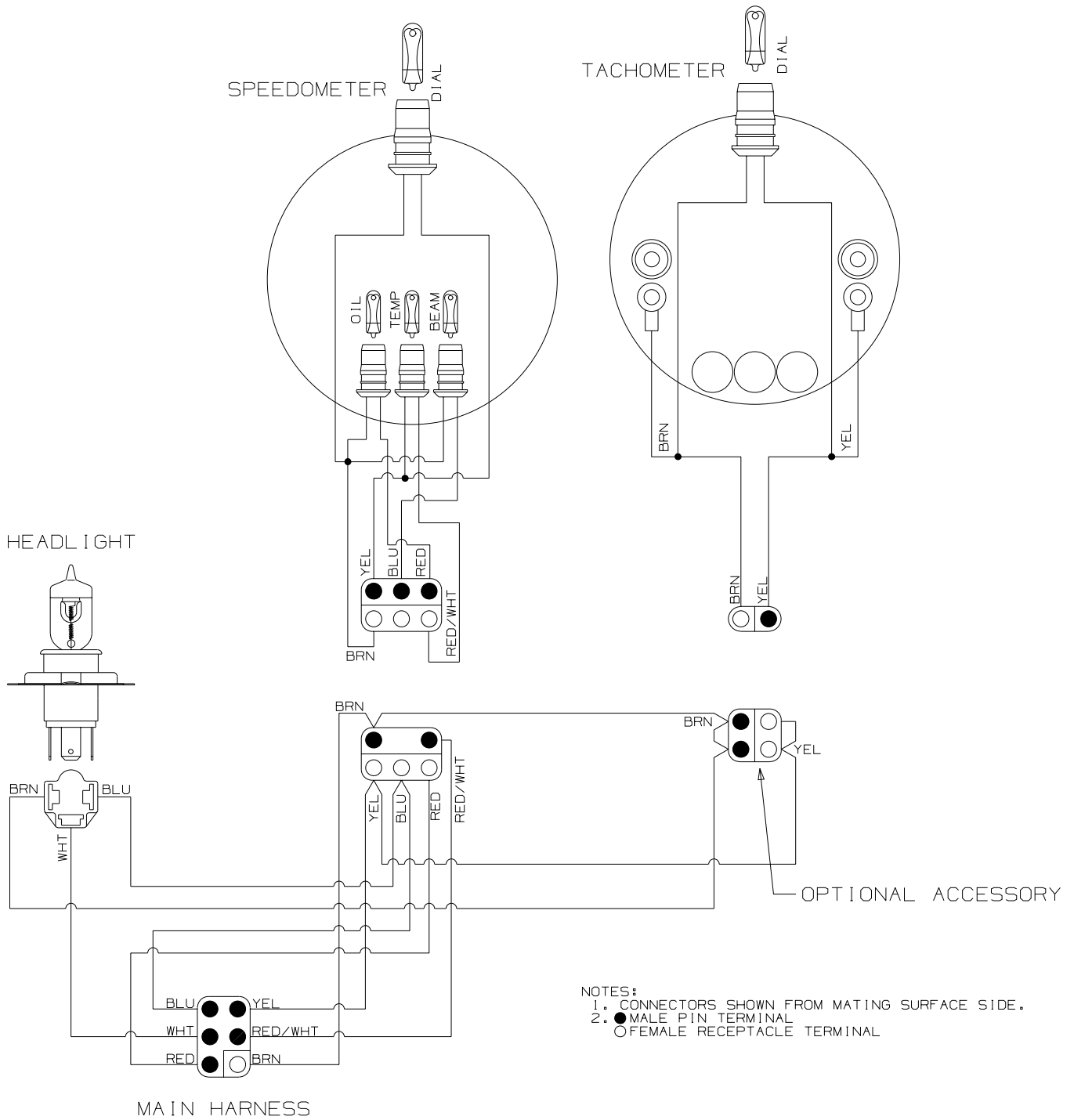


# Harness I

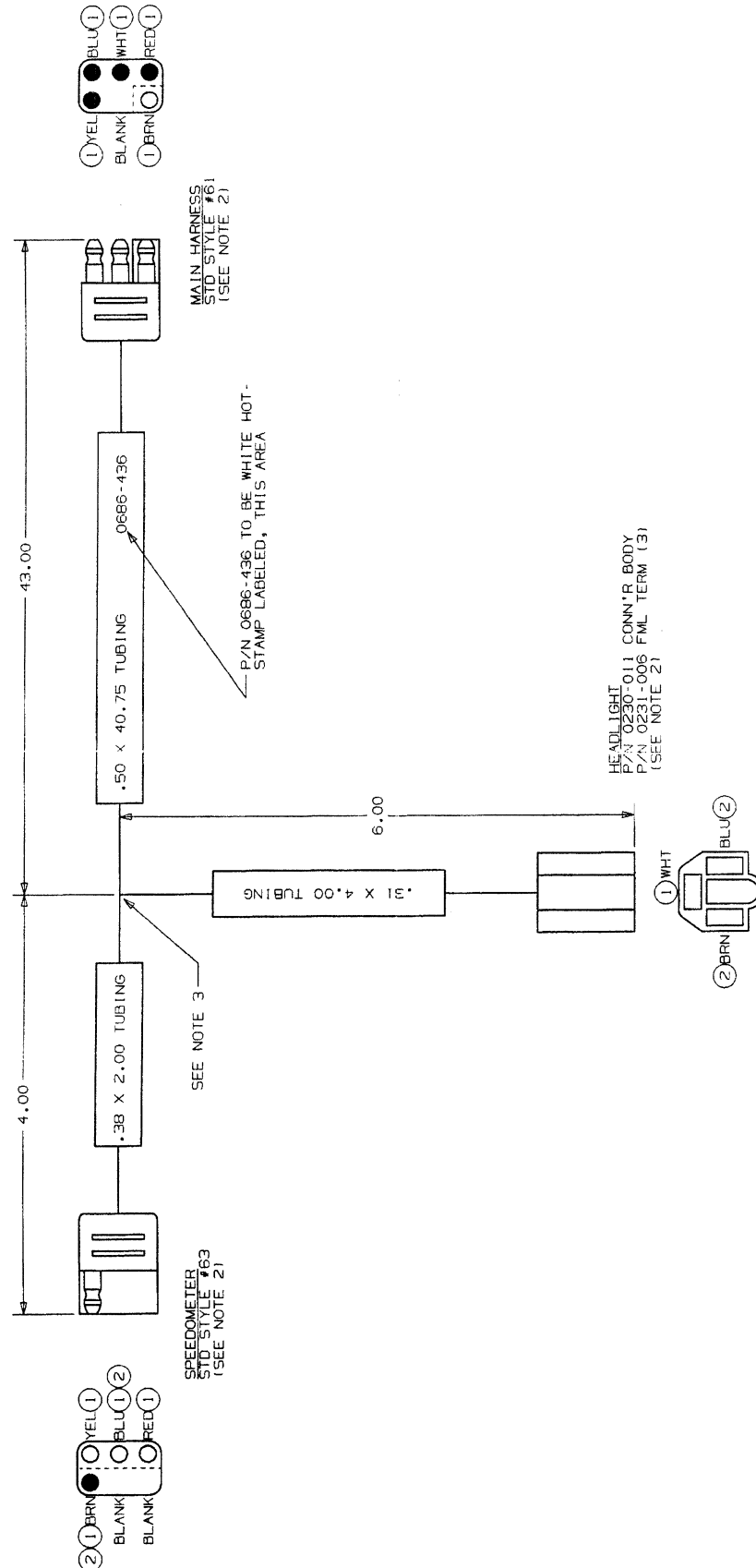


- NOTES:
1. CONNECTORS SHOWN FROM MATING SURFACE SIDE.
  2. ● MALE PIN TERMINAL  
○ FEMALE RECEPTACLE TERMINAL

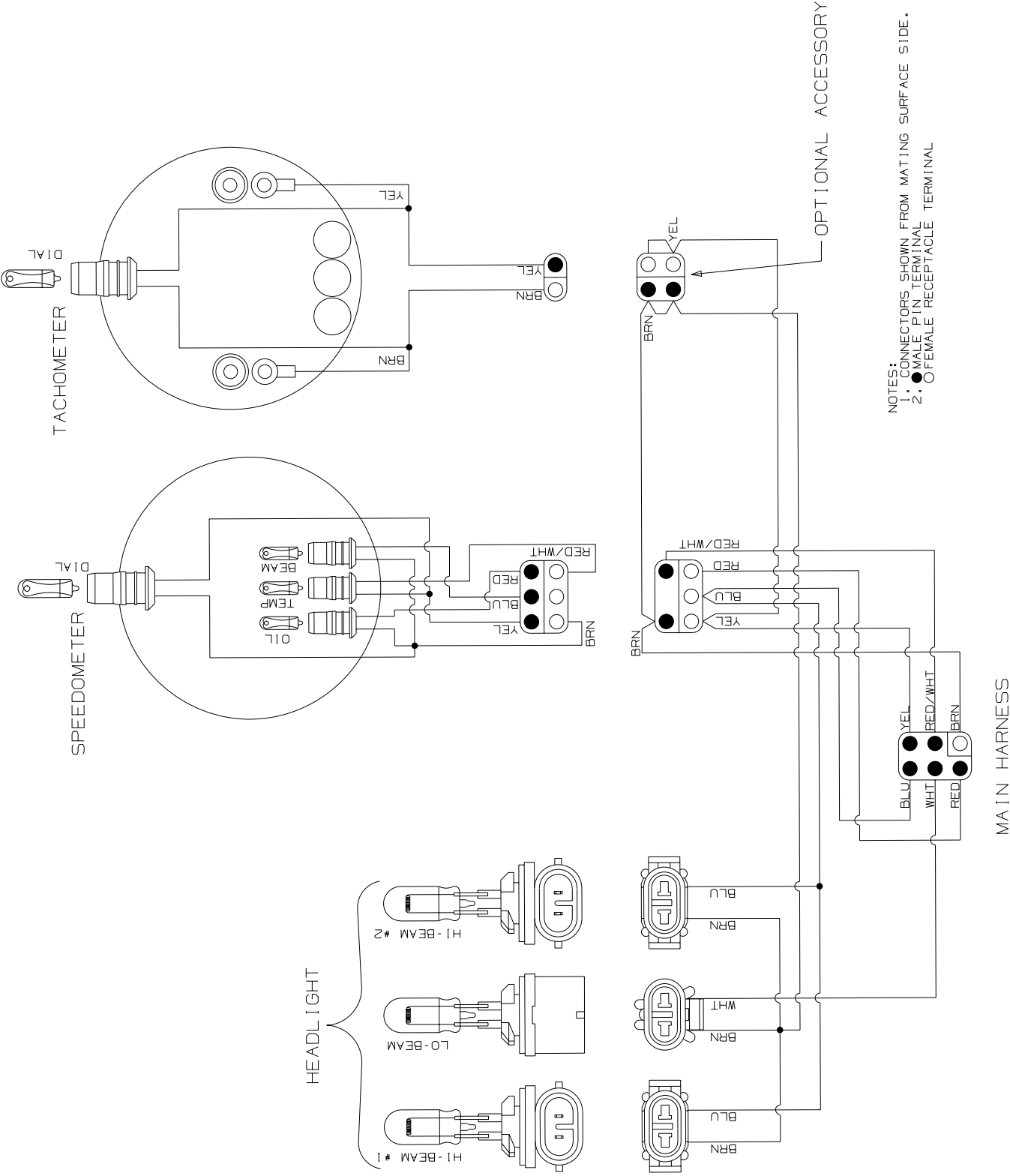
## Harness II



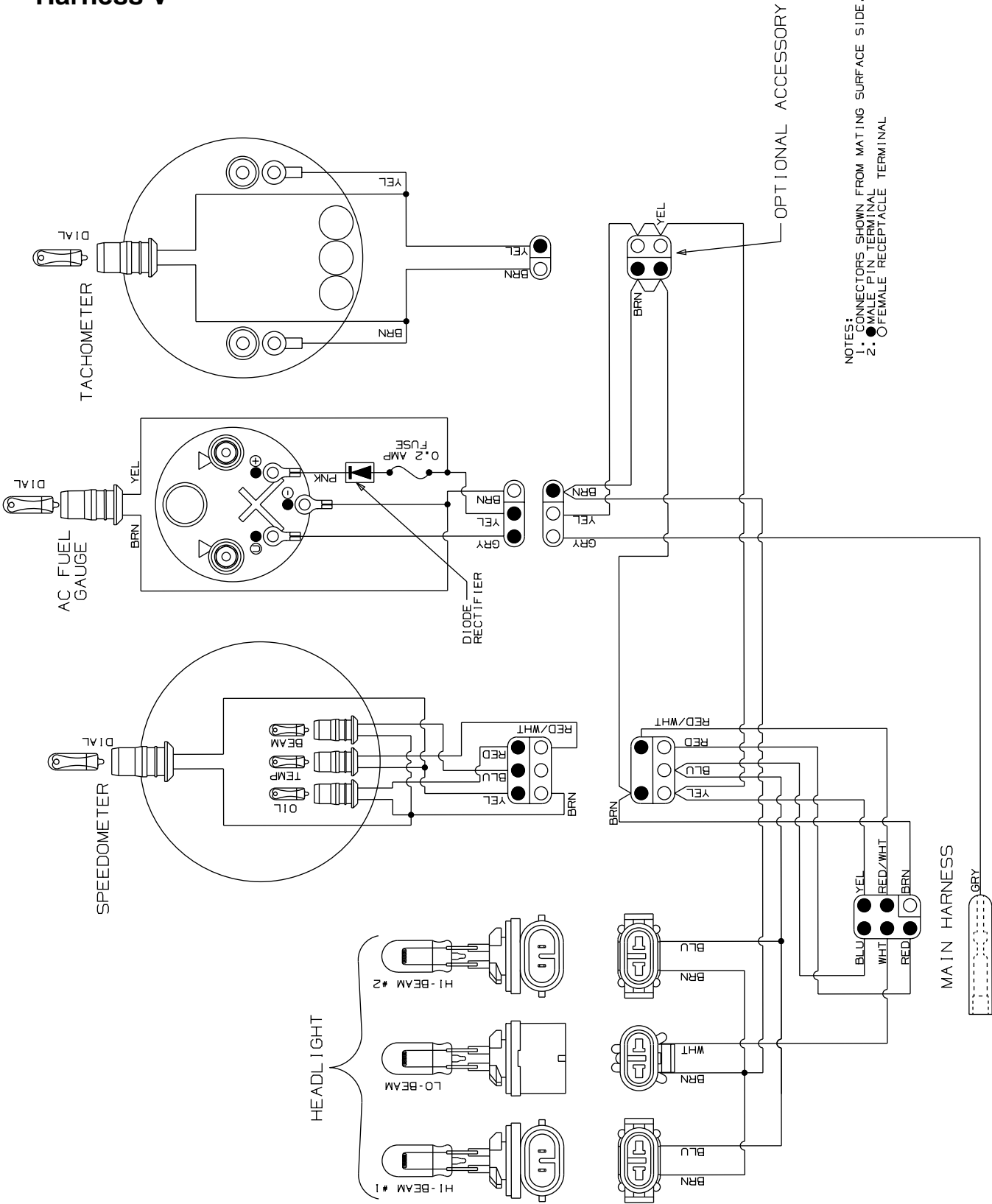
# Harness III



Harness IV



Harness V



NOTES:  
1. CONNECTORS SHOWN FROM MATING SURFACE SIDE.  
2. ● MALE PIN TERMINAL  
○ FEMALE RECEPTACLE TERMINAL