RANGER 250 MACHINE SCHEMATIC L15794 REV: C

ELECTRODE TERMINAL

WORK TERMINAL

Open Circuit Volts:	Max	Min
AC	76	38
DC	68	34
CV LO	32	12
CV HI	47	17

S2 POLARITY SWITCH

Choke mounted on base in front of generator.

L1 CHOKE

D1 - BRIDGE RECTIFIER

S1 - SELECTOR SWITCH

250 Max
180 Max
130 Max
80 Max
CV 18-28
CV 14-22

STATOR WELD WINDINGS

W1
C1
C2
W2

33 TO 37 VAC BETWEEN W1 AND C1 AT HIGH IDLE AND MAXIMUM RHEOSTAT NO LOAD.

45 TO 50 VAC BETWEEN W1 AND C2 AT HIGH IDLE AND MAXIMUM RHEOSTAT NO LOAD.

74 TO 78 VAC BETWEEN W1 AND W2 AT HIGH IDLE AND MAXIMUM RHEOSTAT NO LOAD.

TWO POLE 3600 RPM ALTERNATOR

AC tapped reactor mounted on base in front of generator.

R4 R3 R2 R1 E S2 S1

AC TAPPED REACTOR

254

Rectifier located on rear of fan baffle near top of machine

Torroid Core located on wiring behind receptacles.

TOROID: SENSES WELD OR AC POWER LOAD TO ACTIVATE IDLER

2 TURNS

LEAD 3 PASSES THROUGH TOROID TWO TIMES

STATOR AUXILIARY POWER WINDINGS

240 V AC

41 TO 45 VAC

STATOR EXCITATION WINDINGS

EXCITATION WINDING VOLTS MEASURED AT MAX RHEOSTAT HIGH IDLE NO LOAD

REVOLVING FIELDS

BRUSHES

RESISTANCE APPROX. 8 OHMS @ 75F

10 TO 50 VDC AT 0.8 TO 5.8 AMPS

SLIP RINGS

Rotor Flashing: 2.5 volts @ 0.5 amps. until generator build-up.

5A 3A 5Z 6 3

RCD1 (NHP) 30mA 40A

CB1 15A

CB2 15A

3B 3D 3E 3C 5B 5C

J1 J2

GND-G GND-D

PCB2 AMPHENOL SUPPRESOR BOARD

J2 A B C F

J1-4 J1-8 J1-7 J1-6 J1-1

LOCAL OUTPUT CONTROL 10K

76B 77B 77A 76A R1 75A

REMOTE LOCAL

ALTERNATIVE HOUR METER/ FUEL GAUGE

1 4 7 230 210A

Fuel sender located on top of fuel tank on left side of machine.

S3 OPERATION

	1	2	3	4
OFF				
AUTO	X	X	X	
HIGH	X		X	
START	X		X	X

X= CLOSED CIRCUIT

+14V IN AUTO IDLE / OV IN HIGH IDLE

Located on case front

AUTO IDLE (2) OFF HIGH IDLE (3) START (4) S3 +BAT (1)

FUEL SENDER E F 240-265 Ohms Empty 20-35 Ohms Full

210A +14V RUN

4 1 HOUR METER / FUEL GAUGE

DigitaHour Meter On when Run/Stop switch is in "ON" position.

Analog Fuel Gauge

IDLE SOLENOID COIL -ENERGIZED FOR LOW IDLE.

Idle solenoid is located on top of generator stator assembly

213 12 to 14 volts across coil when energized 15 Ohms

212 211 224C

CB5 20A on Control Panel near two-pole breaker

+14V @ NORMAL OIL PRES.

FOR MODELS WITH ELECTRIC FUEL PUMP ONLY

NO CONNECTION J51-1

RED ELEC. FUEL PUMP

224 224C 210

ENGINE OIL PRESSURE SWITCH OPENS ON LOW OIL PRESSURE

212A 209A J51 - Engine Connector J51-3 J51-4

White harness connector near bottom of firewall on left side of engine

J51-2 BATTERY CHARGING ALT/REG

B+ AC AC GND

U R R

Engine diodes are in engine wire harness.

Fuel solenoid is mounted on engine carburetor.

44 TO 45 VAC BETWEEN AC TERMINALS AT HIGH IDLE

ENGINE STARTER SOLENOID

ENGINE STARTER

ENGINE DIODES

FUEL SHUTOFF SOLENOID

Battery voltage: 12.6 volts at rest 14 volts engine running

12 VOLT BATTERY

Back of welder between engine and case back

FRAME GROUND

Control board common is one diode drop above welder frame ground.

Left side of engine cross support

Resistance of fuel solenoid cannot be accurately measured through diodes.

If engine oil pressure drops below safe operating pressure, the oil pressure switch opens removing 12 volts from circuit 224 shutting off fuel solenoid to stop engine. PCB1 will denergize idle solenoid.

CONNECTOR PIN NUMBERS:

PCB2/J1 FUEL GAUGE

PCB1/J2

PCB1/J1

PC Board located on rear of fan baffle on left side of machine.

10 (J1-6) 8 (J1-12) 261 (J2-4) 260 (J2-3) 7 9 219 (J1-5) 200A (J1-11)

SUPPRESSOR FOR D1 RECTIFIER

5K .05 130V 38J

LOAD SENSOR

+10V IDLE TIMER (12 SEC.)

FIELD FLASHING CIRCUIT

20

FLYBACK DIODE

213A (J2-1)

215 (J1-3)

224 (J1-9)

IDLE SOLENOID COIL SWITCHING TRANSISTOR

(OVER-CURRENT PROTECTED)

+10 VOLT REGULATOR CIRCUIT

+10V

FIELD CURRENT FEEDBACK RESISTOR 0.1

4700uF 80VDC

4.74 V

77 (J1-4) 47.5 +10V

76 (J1-8)

75 (J1-10) 47.5

0.64 V

5E (J1-2)

REVERSE VOLTAGE PROTECTION DIODE

HYSTERESIS SWITCH 68.1K

FEEDBACK AMP

LEVEL CHANGING AND DRIVER CIRCUIT

FIELD CURRENT FEEDBACK

FIELD CURRENT SWITCHING TRANSISTOR (OVER-CURRENT PROTECTED)

PCB1 FIELD & IDLE CONTROL PC BOARD (L12198-1)