

SERVICE INVOICE: R118003982:01

DATE ARRIVED		DATE INVOICE	SALES TYPE	ADVISOR	TERMS	CUSTOMER REFERENCE		
4/4/2022 3:20:45PM		12/26/2023						
YEAR	MAKE	MODEL	VIN	CUSTOMER UNIT #	ENGINE HOURS	IN SERVICE	Component Serial #	ODOMETER
2011	MAGNUM	MMG45	1303328	MAGNUM	4,554		2CS3198	1

Sold Operations

JOB #1 07-00 GENERATOR
COMPLAINT MAGNUM 45- DIAGNOSE NO START AND CODES
CAUSE

INVOICE REPRINT

Sold Operations (Cont.)

CORRECTION

DATE: MULTI
TECH: MULTI
HOURS ON UNIT: 4554

SERVICES PROVIDED:

6/13/22

BATTERY VOLTAGE IS LOW, PULLED UNIT INTO SHOP AND PUT A BATTERY CHARGER ON UNIT. SWAPPED IT WITH A CORE BATTERY FROM OUTSIDE. AFTER INSTALLING THE NEW/OLD BATTERY I TESTED THE BACK OF THE CONTROL WITH MY METER BUT FOUND NO FAULTS. I THEN LOCATED A COMMUNICATION CABLE AND PLUGED INTO IT WITH MY COMPUTER. I WAS NOT ABLE TO READ WHAT THE FAULT WAS AND I WILL RETURN TO THIS UNIT TOMORROW.

6/14/22

THE UNIT IS SHOWING A SD STOP ALARM. I CALLED TECH SUPPORT AND THEY SAID THAT THE UNIT THINKS IT IS ALREADY RUNNING. I USED TYLERS LAPTOP BECAUSE HE HAD THE OLD SOFTWARE REQUIRED FOR THIS CONTROLLER. I PUT IN THE PASSWORD BUT THE PROGRAM WILL NOT LET ME ACCESS THE CONTROL PARAMETERS. I BEGAN TROUBLESHOOTING THE UNIT BY UNPLUGGING THE BINARY INPUTS ONE BY ONE TO SEE IF I COULD FIND THE ISSUE. WHEN I UNPLUGGED THE RPM SIGNAL THE UNIT WOULD FIRE AND RUN BEFORE SHUTTING DOWN FOR A COMMUNICATION ISSUE. I FOUND THAT THE WIRES ON THE RPM INPUTS WERE BACKWARDS. NOW WITH EVERYTHING PLUGED BACK IN THE UNIT WILL RUN ABOUT 15 SECONDS BEFORE THE COMMUNICATION ISSUES SHUTS IT DOWN. UPON LOOKING AT THE UNIT WE FOUND THE UNIT TO BE A MECHANICAL ENGINE, LEADING US TO BELIEVE THAT THE CONTROL WAS SWAPED AND FROM A DIFFERENT UNIT.

7/1/22

PULL UNIT INTO BAY. SET AND INSTALL AVR. RUN UNIT. UNIT WOULD NOT START. FOUND LOOSE EXCITER WIRE ON STARTER. REPAIR. START AND RUN UNIT. UNIT WAS MAKING VOLTAGE BUT VOLTAGE WAS STILL LOW. CHECK VOLTAGE SELECTOR SWITCH IN ALL THREE POSITIONS. ONLY PUTTING OUT 390ISH VOLTS IN 480. 165ISH IN 208. AND 90 VOLTS IN 120. INSPECT ALT END. ALT END HAS BEEN REPLACED. WILL NEED TO OHM OUT AND CHECK FOR CORRECT INSTALLATION. CONFIRM THE AVR IS RIGHT FOR THE NEW ALT END (WE REPLACE BASED ON MACHINE SERIAL NUMBER). IF MACHINE NEEDS NEW AVR WILL HAVE TO RESEARCH AND VERIFY ALL OTHER COMPONENTS ARE COMPATIBLE

7/22/22

UNIT SHUTTING DOWN CRANK PROCEDURE DUE TO NOT BEING ABLE TO READ ENGINE SPEED. SPEED SENSOR CONNECTED. OHM OUT HARNESS. HARNESS HAD 0.3 OHMS. OHM OUT CONNECTOR. 0.3 OHMS. REMOVE SENSOR PLATE. MPU WAS RUBBING FLYWHEEL. END OF MPU WAS RUBBED DOWN AND FLYWHEEL SHINY.

8/22/23

ATTEMPTED TO START UNIT AND FOUND THAT NO MAG PICKUP WAS INSTALLED. INSTALLED AND TESTED UNIT AGAIN. FOUND THAT CONTROL WAS NOT SENDING START SIGNAL TO RELAY. AFTER FURTHER TESTING I FOUND THE CONTROL TO BE BAD. QUOTING REPLACEMENT.

QTY	ITEM	DESCRIPTION	UNIT PRICE	EXTD PRICE
2	118X/8592008	SPEED SENSOR		
	LABOR GEN653-6020A	GENERATOR REPAIRS		
	LABOR MULL	TAP LABOR		

Prepay: \$0.00 1

Sold Operations (Cont.)

JOB #3 07-00

GENERATOR

COMPLAINT

REPLACE VOLTAGE REGULATOR

CAUSE

CORRECTION

QTY	ITEM	DESCRIPTION	UNIT PRICE	EXTD PRICE
1	118M/SUA77199	REGULATOR VOLTAGE MAVC63-4D UL		
2	118X/RV1849	12V 5A 5 PIN RELAY		
1	FRT	FREIGHT		

INVOICE REPRINT

Sold Operations (Cont.)

JOB #5 07-00

GENERATOR

COMPLAINT

CONTROL SWAP

CAUSE

CORRECTION

DATE: 8/29/22

TECH:

SERVICES PROVIDED:

INSTALLED NEW MPU, REMOVED OLD CONTROL FROM UNIT AND INSTALLED NEW. FOLLOWED THROUGH WIRING DIAGRAM AND CONNECTED NEW CONTROL. PROGRAMMED CONTROL FOR GENSET BASED OFF OF VOLTAGE AND KW. STARTED AND RAN UNIT TO VERIFY PROPER OPERATION. ONCE I WAS HAPPY WITH CONTROL PROGRAM I THEN COMPLETED A TWO HOUR LOAD BANK ON UNIT. UNIT RAN TEST WITHOUT ANY ISSUES. ALL IS OK AT THIS TIME.

10/27/2022

TURNED CONTROL POWER ON AND NOTICED AN ALARM ON CONTROL. CLEARED ALARM AND STARTED UNIT. UNIT STARTED AND RAN FOR ABOUT 15 MINUTES THEN SHUTDOWN. CLEARED ALARM AND ATTEMPTED TO START. UNIT WILL CRANK FOR A COUPLE OF SECONDS THEN STOP. I BELIEVE THE ISSUE TO BE COMING FROM THE START AND RUN RELAYS. TYLER IS GOING TO REPLACE BOTH OF THESE RELAYS AND WE WILL RETEST UNIT.

11/23/2022

TROUBLE SHOT UNIT. VERIFIED BATTERY VOLTAGE AND STARTER WORKING. OPENED UP CONTROL PANEL AND FOUND LOOSE WIRE. TRACED IT TO START RELAY. CONNECTED TO CONTROL OUTPUT. UNIT WILL START BUT THE STARTER IS STAYING ENGAGED. NEEDS MORE TROUBLE SHOOTING.

12/1/2022

LOCATED AND DOWNLOADED CORRECT SOFTWARE FOR CONTROLLER. PLUGGED IN TO CONTROL. AFTER TROUBLE SHOOTING THE STARTING ISSUE I FOUND THAT THE STARTER CONTROL WIRE AND THE FUEL SHUTOFF WIRE WERE NOT IN THE CORRECT POSITIONS. I MADE THOSE CORRECTIONS. THE UNIT WOULD CRANK FOR A 3 SECOND PERIOD THEN QUIT CRANKING. I FOUND THAT THE SETPOINTS FOR THE OIL PRESSURE SENSOR WERE NOT CORRECT. MADE THOSE CORRECTIONS AS WELL AS ON THE ENGINE COOLANT TEMP SENSOR AS WELL. UNIT WILL NOW START AND RUN CORRECTLY WITH NO ALARMS. TRIED TO PERFORM 2 HR LOAD BANK ON UNIT AT 480VAC. HOOKED UP LOAD BANK AND BEGAN TEST. WHEN I APPLIED 40% LOAD THE VOLTAGE WOULD DROP TO ABOUT 460 VAC. ENGINE RPM DROPPED 1720. THE UNIT WOULD DROP RPM ACCORDING TO HOW MUCH LOAD WAS APPLIED. I BELIEVE THERE IS AN ISSUE WITH THE MECHANICAL GOVERNOR ON THE FUEL INJECTOR PUMP. IT WILL REQUIRE FURTHER RESEARCH TO SEE IF THERE ARE ANY ADJUSTMENTS THAT CAN BE MADE.

DATE: 3/7/2023

TECH:

SERVICE PROVIDED:

INSTALLED NEW GOVERNOR ACTUATOR. STARTED UNIT AND TESTED. THE GOVERNOR STILL DID NOT WORK CORRECTLY. I BELIEVE THE ELECTRONIC GOVERNOR IS BAD.

4/10/2023

TECH:

SERVICE PROVIDED:

NEW ELECTRONIC GOVERNOR ARRIVED. I INSTALLED IT ON UNIT BUT STILL COULD NOT GET THE UNIT TO CORRECT SPEED WITHOUT ADJUSTING IT MANUALLY ON INJECTOR PUMP SCREW. I REMOVED NEW GOVERNOR AND ACTUATOR AND INSTALLED OLD ONES BACK ON UNIT. IM NOT SURE WHAT TO DO AT THIS POINT. I AM OUT OF IDEAS.

Sold Operations (Cont.)

QTY	ITEM	DESCRIPTION	UNIT PRICE	EXTD PRICE
1	118X/27658CK	GOVERNOR ACTUATOR		
1	118X/ESD2402-12	CONTROLLER		
1	118X/IL3AMF25BAA	Auto Mains Failure (AMF) gen-s		
1	FRT	FREIGHT		
	LABOR GEN653-6020A	GENERATOR REPAIRS		
	LABOR MULL	TAP LABOR		

Sold Operations Totals

\$3,584.68

INVOICE REPRINT

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	ESTIMATED	BILLED
LABOR		\$1,819.37
PARTS		\$1,720.25
MISC		\$45.06
SUBLET		\$0.00
PREPAY		\$0.00
SUBTOTAL		\$3,584.68

SHOP SUPPLIES	\$0.00
TAX	\$0.00
TOTAL	\$3,584.68

Please Remit Payment to:
Central Power Systems & Services
P.O. Box 877625
Kansas City, MO 64187-7625

AUTHORIZED BY _____ DATE _____