POWER SUPPLY
MODEL M-1070 INSTRUCTION MANUAL

The Model M-1070 is a heavy duty power inverter designed to operate from a 6 volt D.C source, a 12 volt D.C. source, or from 115 volt A.C. 60 cycle commercial power mains. It will supply high voltage (500 volts), intermediate voltage (250 volts), 105 volts regulated, filament voltage and D C. control voltage

The power supply as shipped from the factory will operate from 12 volts D C. and 115 volts A C. The owner can modify this supply to operate from 6 volts D C and 115 volts A C by following the changes outlined in illustration #1 and #2 on drawing #572

No internal changes or wiring changes are necessary to change from D.C operation to A.C. operation All that is necessary is to turn the front panel switch from the "D C. - BATTERY" to the "A.C - 117V. 60 C." position. This switch makes ALL the proper connections. Both input supply connections, to the battery and A.C power, may be left connected to the supply if desired.

All voltages and control circuits are terminated in an 11 prong socket located on the end of the power supply chassis These terminals are as follows:

Pin #1 - Primary "ON - OFF" switch
Pin #2 - Primary "ON - OFF" switch
Pin #3 - Push-to-talk circuit. (Ground thru mike switch)
Pin #4 - +250 volts for receiver
Pin #5 +500 volts for transmitter
Pin #6 - +250 volts for transmitter
Pin #7 Control voltage
Pin #8 Filament supply for both receiver & transmitter
Pin #9 - +105 volts regulated
Pin #10 - Common, (Ground)
Pin #11 - No connection, not used.

An antenna change-over relay may be connected from pin #3 to pin #7. This must be a relay with a D.C. coil of the same voltage as the battery voltage that the power supply is wired for If the power supply is connected to operate from a 6 volt battery AND 115 volts A.C this must be a 6 volt D C. relay. If the power supply is connected to operate from a 12 volt battery and 115 volts A.C. this must be a 12 volt D.C. relay. NOTE: The control voltages are always D.C. whether the power supply is operated from a battery or from a 115 volt 60 cycle power main. A standard coaxial type relay is recommended for the antenna change-over relay. Other relays can be used, however, current consumed by the external relay must not exceed 300 milliamperes

ACCESSORIES

WH-6 A 9 foot cable complete with connectors attached for use with the PMR 7/8, AF 67/68 and M 1070/1071, ready for operation.

WH-20 Same as above with a 23 foot length for mobile installation with the M 1070/1071 mounted in the car trunk

RATING OF M-1070 POWER SUPPLY

Pin #4 - +250 volts D C. for receiver. 100 ma continuous.
Pin #5 - +500 volts D.C for transmitter. 250 ma at 50% duty.
Pin #6 - +250 volts D.C. for transmitter. 75 ma. at 50% duty.
Pin #8 - All filaments, 6 V at 8.5 A. or 12 V at 4.25 A. continuous.
Pin #9 - +105 volts regulated at 20 ma. continuous

Vehicle voltage regulator·

Make sure that the battery voltage does not exceed 14.5 volts at any time (7.5 volts for 6 volt batteries). If the voltage goes above these values rectifiers and filter capacitors are subject to pre-mature failure. Have the generator voltage regulator adjusted to maintain the battery voltage in the proper range.

PRIMARY WIRING

Adequate primary wire size is necessary for proper operation of this supply. The following recommended wire sizes should be used·

Battery voltage	Less than 6' of cable	More than 6'
12	#10	#8
6	#8	#6

It is only necessary to run a "HOT" lead to the battery, the car body will provide a satisfactory return if care is used to remove all dirt and paint under the mounting bolts when mounting the power supply.

The power supply will operate from either negative or positive grounded systems equally well without any modifications of any kind.

If this power supply is used for the transmitter only a bleeder resistor must be connected from pin #4 to ground. This can be a 25,000 ohm 10 watt resistor. This resistor will prevent the "B" voltagee becoming too high during stand by periods.

NOISE SUPPRESSION

The M 1070 power supply has been designed to include adequate filter circuits. These will keep all "hash" and "ripple" interference generated within the supply from feeding out into either primary or secondary circuits.

Each mobile installation requires a thorough analysis of noise interference generated by the vehicle. This problem is different for every installation. The following are listed common sources of such mobile interference and proven techniques for their elimination.

Hash interference can enter the receiver from either radiation to the antenna or through the "A" and "B" power leads. Antenna hash pickup can be ascertained by grounding the antenna input and checking for hash. If this type pickup is excessive, it must be corrected by better antenna lead shielding or repositioning of the power supply with respect to the receiver.

Hash feeding through the power leads to accessories is bypassed to ground at the M-1070 control plug. However, if too high a level still exists at this point we recommend further suppression at the power input. Use both low value disc and higher capacity paper condensers to ground from all leads at the receiver plug. In the primary circuit use .01 MFD and 1.0 MFD in parallel to ground. In the high voltage "B" use .01 and .1 MFD. A 1.8 MH choke can be inserted in series with the "B" lead.

The M-1070 has maximum filtering in the low voltage circuit where an additional 8 HY choke and a 15 MFD condenser are employed. This filtering is also in the low voltage circuit present on pin #5 during transmit

A. Distributor Noise - Can be reduced by commercially available suppressors installed in the common connection.

B Generator Noise - Can be reduced by a condenser of approximately .5 MFD capacity installed at the "hot" armature connection on the generator.

C Voltage Regulator - A ceramic condenser of approximate .001 capacity in series with a 10 ohm resistor should be connected across the generator field.

D Spark Plug - Use commercially available types with built in noise suppressing resistor

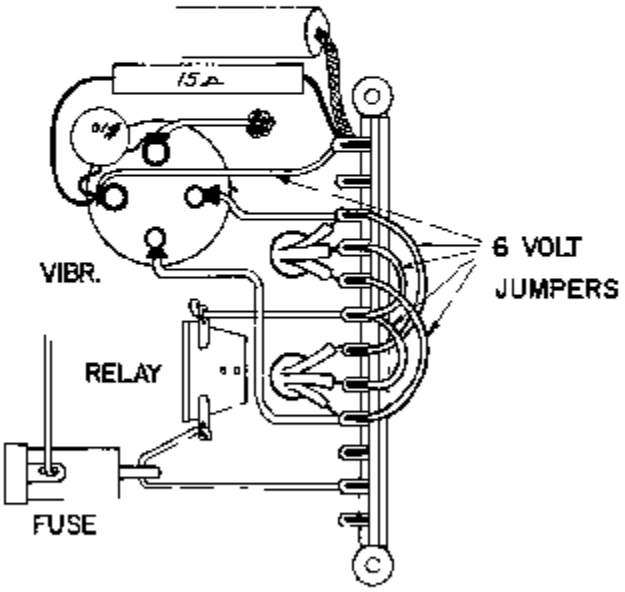
E Equipment Grounding - The power supply and transmitter must be firmly grounded to the car chassis Remove all paint and protective material from surfaces to be bonded. Where possible, solder ground strap between equipment mounting plates and car chassis.

F. Hub Caps - Noise generated in wheel bearings can be eliminated through instal lation of commercially available grounding springs.

Additional noise in a vehicle can be generated in ignition switches, instrument gauges, windshield wipers, headlight and horn relay and exhaust pipes. Through the use of by pass condensers such minor noise generations can genetally be eliminated

WARRANTY

The RETMA warranty applies to all parts and workmanship in the M 1070 power supply.



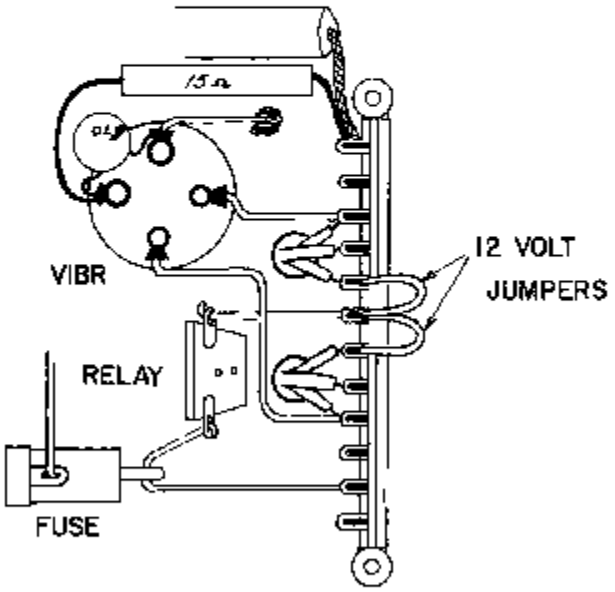


ILLUSTRATION – I

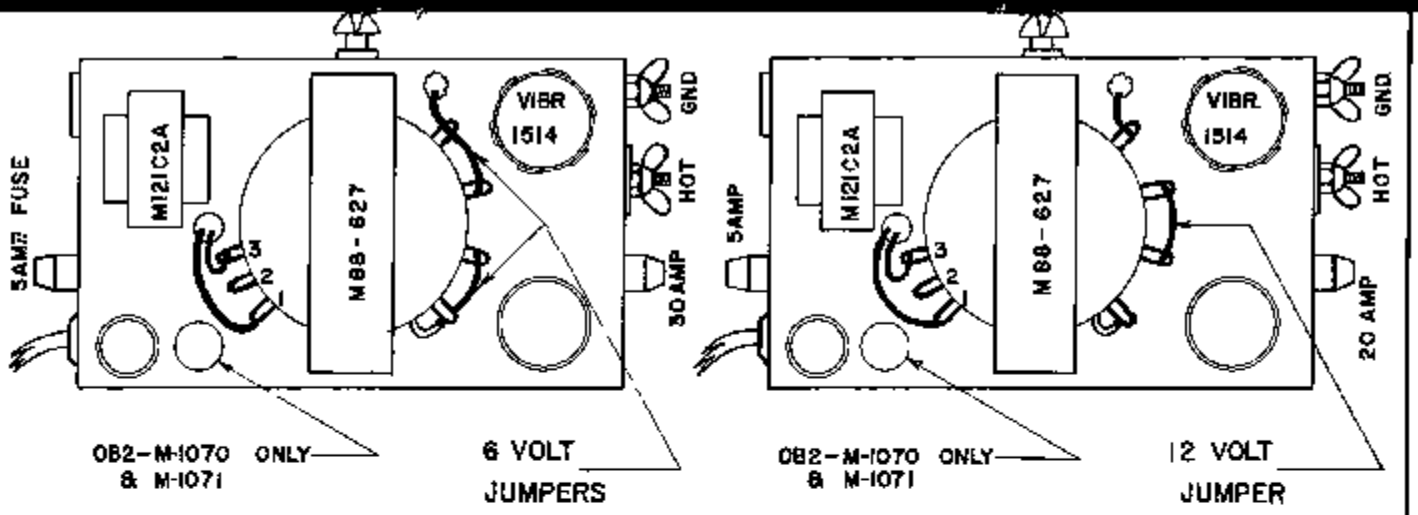
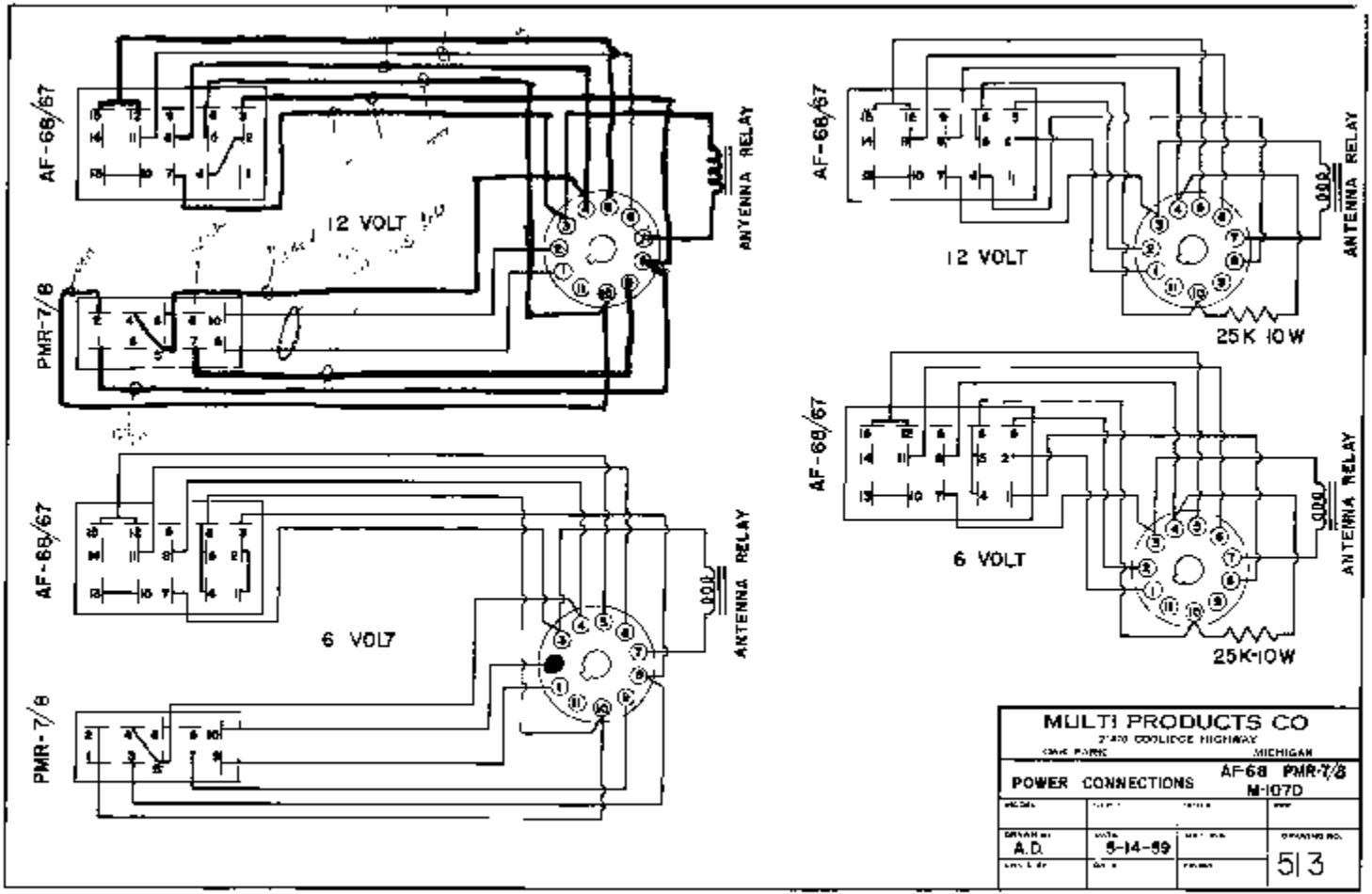


ILLUSTRATION-2

—12 VOLT TO 6 VOLT MODIFICATION—

TO CONVERT FOR 6 VOLT DC OPERATION REMOVE ALL THREE 12 VOLT JUMPERS SHOWN IN THE ABOVE ILLUSTRATIONS AND INSTALL THE SEVEN 6 VOLT JUMPERS ILLUSTRATED

DWG #572

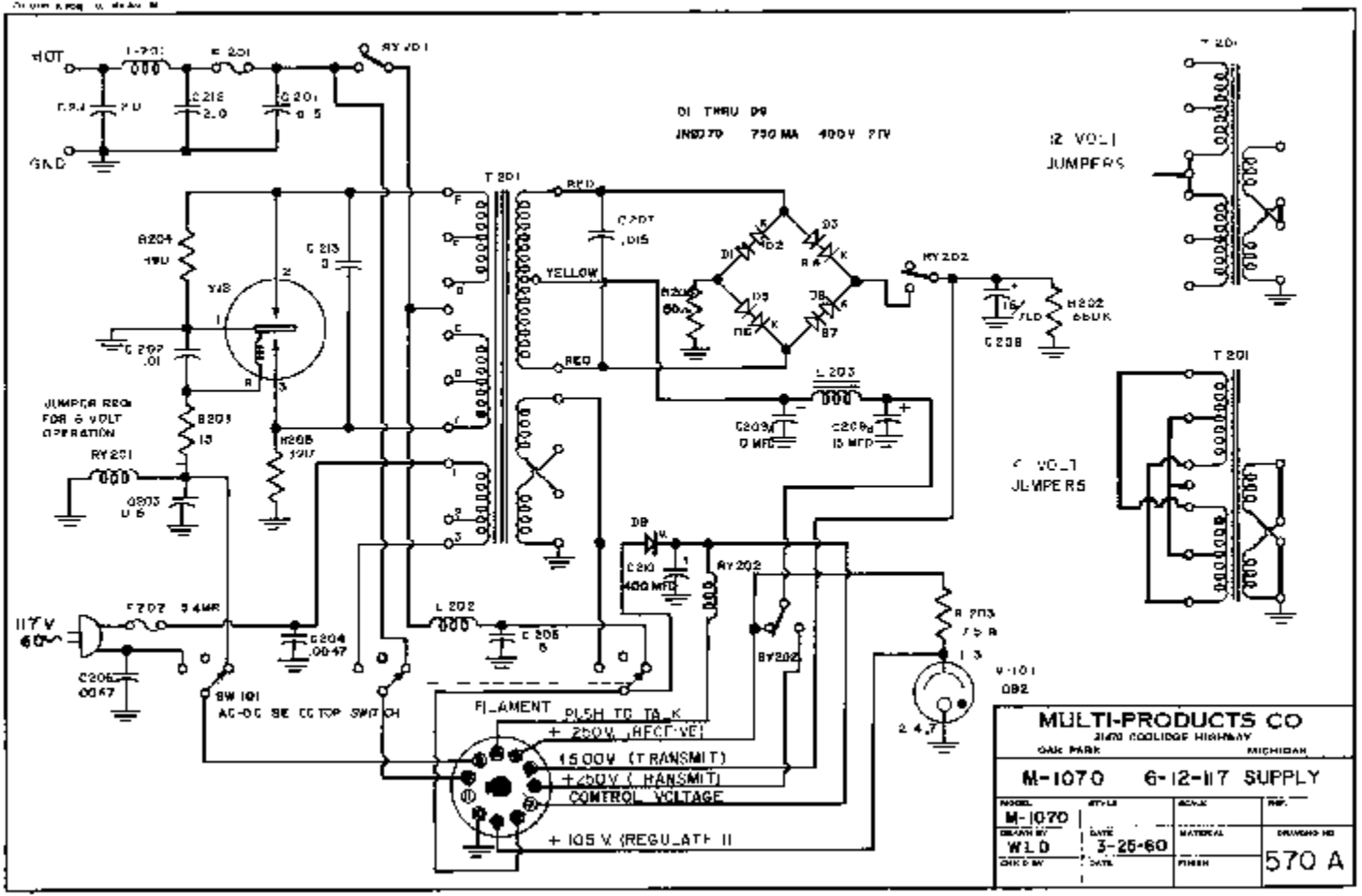


MULTI PRODUCTS CO
2140 COOLIDGE HIGHWAY
OAK PARK MICHIGAN

POWER CONNECTIONS

AF-68 PMR-7/8
M-107D

DRAWN BY A.D.	DATE 5-14-59		DRAWING NO. 5|3


HOT
GND
D1 THRU D9
1N3070 750 MA 400V PIV
12 VOLT
JUMPERS
T201
YELLOW
RED
RY201
RY202
JUMPER REQ
FOR 6 VOLT
OPERATION
SW 101
AC-DC SELECTOR SWITCH
FILAMENT PUSH TO TALK
+ 250V (RECEIVE)
1500V (TRANSMIT)
+400V (TRANSMIT)
CONTROL VOLTAGE
+ 105 V (REGULATED)
6 VOLT
JUMPERS
MULTI-PRODUCTS CO
21470 COOLIDGE HIGHWAY
OAK PARK MICHIGAN
M-1070 6-12-117 SUPPLY
M-1070
W.L.D.
3-25-60
570 A

PARTS LIST FOR M-1070 6-12-117 SUPPLY

SYMBOL	DESCRIPTION			PART NUMBER
C201	Capacitor, fixed, hash	6 mfd	120 VDC	
C202	Capacitor, disc ceramic,	.01 mfd		
C203	Capacitor, fixed, hash,	.5 mfd.	120 VDC	
C204	Capacitor, disc ceramic	0047 mfd	1 5 KV	
C205	Capacitor, fixed, hash,	.5 mfd.	120 VDC	
C206	Capacitor, disc ceramic,	.0047 mfd	1.5 KV	
C207	Capacitor, disc ceramic	015 mfd	1 5 KV	
C208	Capacitor, electrolytic,	15 mfd.	200 V	
C209	Capacitor, electrolytic,	15-15-10 mfd.	450 V.	
C210	Capacitor, electrolytic,	400 mfd	26 V	
C211	Capacitor, metalized paper,	2 mfd	200 V	
C212	Capacitor, metalized paper	2 mfd.	200 V.	
C213	Capacitor fixed hash,	5 mfd.	120 VDC	
D1	Rectifier, Silicon, 400 PIV	750 Ma		1N2070 or Similiar
D2	Rectifier, Silicon, 400 PIV	750 Ma.		1N2070 or Similiar
D3	Rectifier, Silicon, 400 PIV	750 Ma.		1N2070 or Similiar
D4	Rectifier, Silicon, 400 PIV	750 Ma		1N2070 or Similiar
D5	Rectifier, Silicon, 400 PIV	750 Ma		1N2070 or Similiar
D6	Rectifier, Silicon, 400 PIV	750 Ma		1N2070 or Similiar
D7	Rectifier Silicon, 400 PIV	750 Ma		1N2070 or Similiar
D8	Rectifier, Silicon, 400 PIV	750 Ma		1N2070 or Similiar
D9	Rectifier Silicon 400 PIV	750 Ma		1N2070 or Similiar
L201	Hash choke, #14 wire			409B
L202	Hash choke, #17 wire			409A
L203	Filter choke			M121-C2A
F201	Fuse 20 amp @ 12 V , 30 amp @ 6 V			
F202	Fuse 5 amp			
R201	Resistor, fixed, wirewound,	15 ohms, 7 watt		
R202	Resistor, fixed, composition	560,000 ohms, 1 watt		
R203	Resistor, fixed, wirewound,	7500 ohms, 10 watt		
R204	Resistor, fixed, composition,	390 ohms, 2 watt		
R205	Resistor, fixed, composition,	390 ohms, 2 watt		
R206	Resistor, fixed wirewound,	50 ohms 10 watt		
RY201	Relay			KR 2634
RY202	Relay			KR-2539
SW101	Switch, rotary type 3 pole 3 position			565
T201	Transformer, power			M88-027
V101	Tube, voltage regulator type OB2			OB2
V1B	Vibrator Mallory type 1514 (6 Volt, Commercial Duty)			1-14
Plug	Plug connector, 11 prong male, (furnished)			86CPtt
Socket	Socket connector, tt prong female			77MPtt