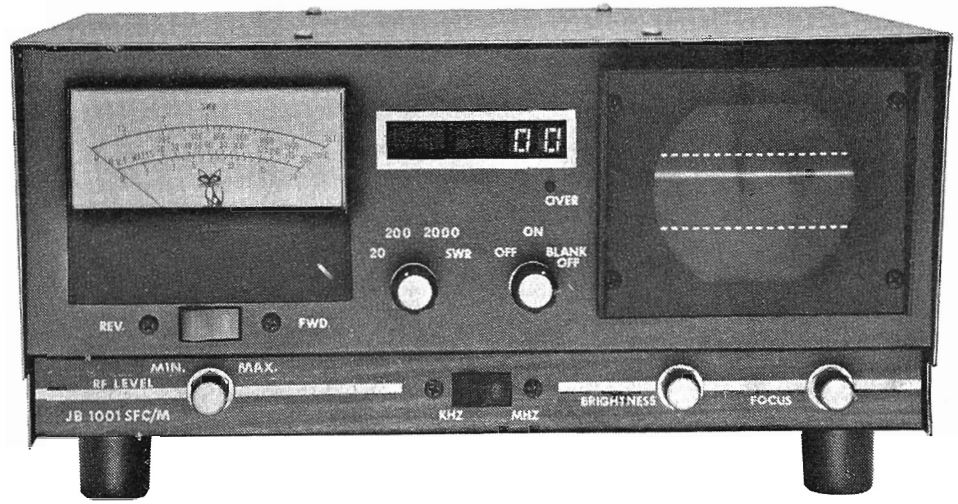
JB 1000 SM / JB 1001 SFC/M

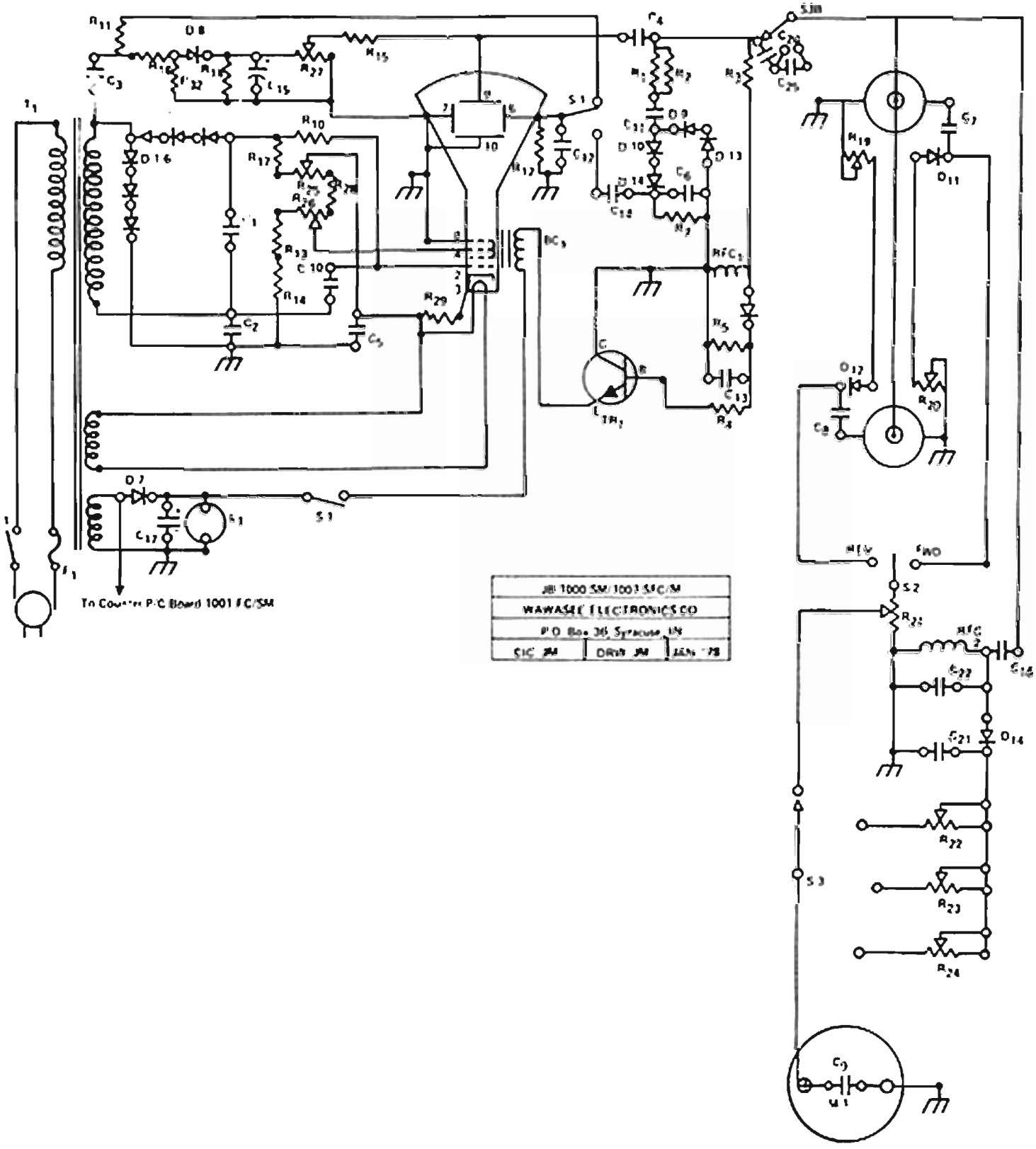


®

WAWASEE ELECTRONICS CO., INC.

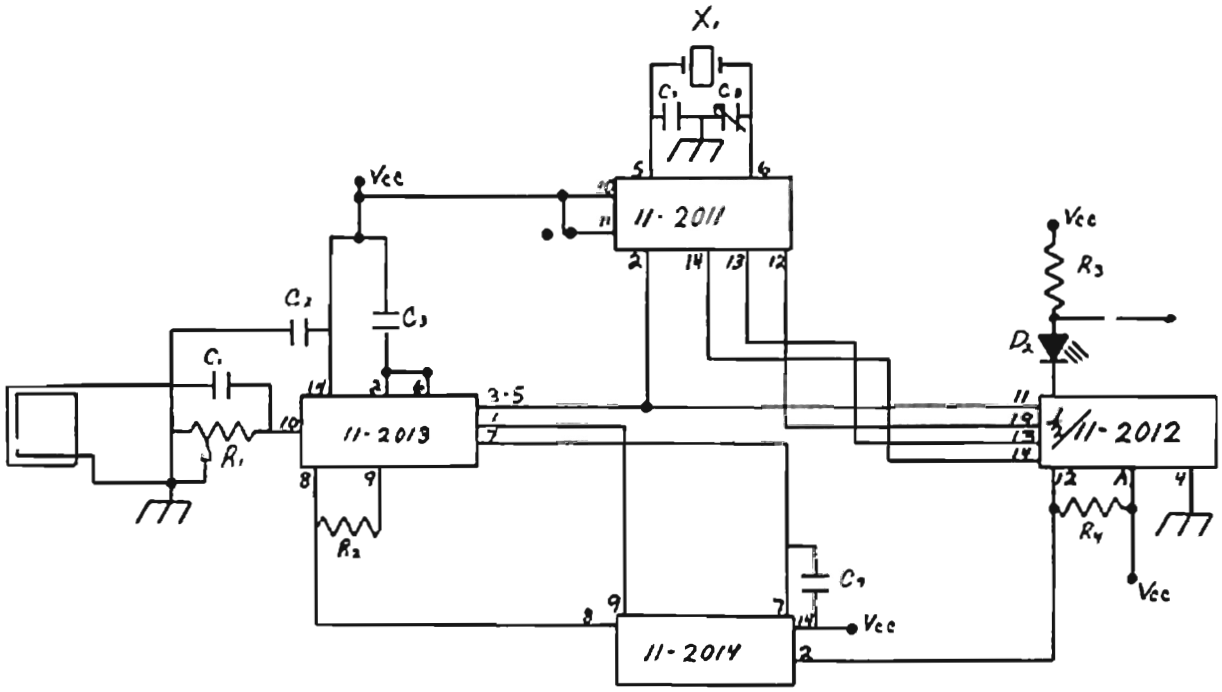
P.O. Box 36 • Syracuse, Indiana 46567 • Phone (219) 457-3191

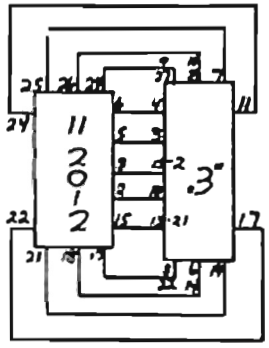
OPERATING INSTRUCTIONS

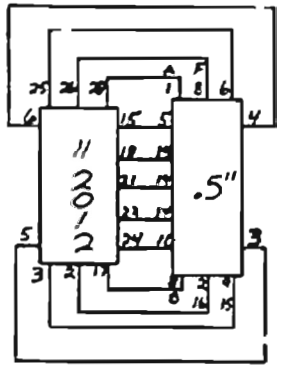

JB 1000 SM/1003 SFC/SM
WAWASEE ELECTRONICS CO
P.O. Box 36, Syracuse, IN
To Counter P.C. Board 1001 FC/SM

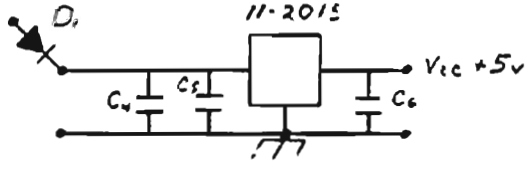
PARTS LIST JB 1000 SM / JB 1001 SFC/M

C1, 2	.1 1000 VDC	R1,2	820 Ohm 3W
C3	.01 1600 VDC	R3	820 Ohm 10W
C5	.05 1600 VDC	R4	470 Ohm ½W
C6, 7, 8, 4	.001 1000 VDC	R5,	15K ¼W
C9, 21	.01 1000 VDC	R7	22K ½W
C10	.033 1600 VDC	R17	4.7K ¼W
C11	150 PF 500 VDC	R10	470K ½W
C12	220 PF 1000 VDC	R11, 12, 32	750K ½W
C13	10 MFD 35 VDC	R13, 14, 15, 16	1 MEG ½W
C14	.047 50 VDC	R18	220K ½W
C15	25 MFD 50 VDC	R19, 20	200 Ohm P/C Control
C16	8.2 PF 1000 VDC	R21	50K Control
C17	220 MFD 50 VDC	R22	100K P/C Control
C18	5 PF 1000 VDC	R23, 24, 27	1 MEG P/C Control
C20	15 PF 1000 VDC	R25	500K Control (Brt.)
C25	8.2 PF 1000 VDC	R26	1 MEG Control (Focus)
C22	56 PF 1000 VDC	R27	
		R28	100K ½W
D1, 2, 3, 4, 5, 6	IN4007 Diode	R29	150K ½W
D7, 8	IN4001 Diode	R30	
D9, 10, 13, (14 x 2)	IN4148 Diode	R31	
D11, 12	IN68 Diode		
		S1	4 Position 3 Pole
TR1	2N5372 Transistor	S2	2 Position 1 Pole
RFC 1	56 UH Choke	S3	4 Position 1 Pole
RFC 2	1 MH Choke	S4	3 Position 1 Pole
BC1	10 Ohm Coil	T1	Power Transformer
		V1	3 RP1 CRT.
L1	No. 56 Lamp		
F1	½ Amp 3AG Fuse	PCB1	Scope Power/Deflection
M1	200 UA Meter	PCB2	SWR/RF Power P/C Board









PARTS	
C 1,2,3,4,7 -	.1 F 50v
C 5	.01 F 50v
C 6	1000 F 16v
C 8	15 pF 50v
C 8	8-20 variable
R 1	5K POT
R 2	270Ω
R 3	100Ω
R 4	220Ω
X 1	Crystal
D 1	IN 1001
D 2	LED

Frequency Counter
MARCH 1977 DRN. BS.
WAW SE ELECTRONICS INC.
SYRACUSE IN. 46567

WEC 134A

COUNTER

FREQUENCY RANGE: 1000 Hz to 50 MHz (typical)

INPUT CHARACTERISTICS: Sine Wave Sensitivity 50 MV. (typical)

DISPLAY: 6 Digits .3" Format with Leading Zero Blanking. Overflow Indication, Light Indicates Display Range Exceeded.

ACCURACY: ± Time Base Accuracy ± 1 Count MHz and KHz Range Selected.

POWER REQUIREMENTS: AC Equipment 117 VAC, 60 Hz 1A

INSTALLATION

Installation is simple; it is necessary only to connect a jumper of RG 58U or RG 8U cable terminated in PL-259 connector from the transmitter to the connector on the rear of the unit marked transmitter. Connect antenna to SO/239 connector marked antenna. For higher powered transmitter we recommend RG 8U cable. The counter in this unit IS NOT connected to the RF source directly. Therefore, the RF power applied to the unit can be the full range of the instrument, 0-2000 watts.

OPERATION

Install unit as outlined above. Connect power cord to 120V 60 Hz line current. Turn off/on switch to "on", adjust brightness and focus controls for a sharp, clean line. Set wattmeter selector switch to a range higher than the suspected output of the transmitting unit. Key transmitter, with mic push to talk button. Check your RF wattmeter and read the watts directly on the scale corresponding to the function switch setting. If the wattmeter setting is too high, change the setting to the next scale down. Place off/on switch to the BLK. or TRAP position.

CAUTION: Be sure your RF output falls within that power range on the meter. Do not change the scale down if the wattage will be over that power setting by any amount. To do so will cause damage to the meter and trap circuits in unit.

WARNING: Warranty is void on all units returned for repair, where the meter and/or the blanker, trap circuits have been damaged by large unattenuated power levels. NOTE: The power levels are automatically attenuated with the RF power selector switch.

NOTE: On small signals (below three watts) it may be necessary to move the BLK switch to the "on" position. The low wattage signal cannot overcome the blanking circuit, which cuts off the trace when not transmitting. This feature has been incorporated into the scope to keep the operator from burning the fluorescent coating off the tube when not using the unit for transmitter test. BE SURE to return the switch back to BLK or TRAP when operating with higher powered units and use the "on" position only to adjust brightness and focus levels, and low wattage signals.

To measure SWR move the selector switch to SWR position and set the rocker switch to forward, adjust RF level control for maximum setting on meter pointer (to "SET"). Then move Rocker Switch to "Reverse" and read SWR directly from scale.

To adjust antenna proceed as outlined for SWR measurement, leave meter in reverse position and adjust antenna for lowest reading. Use antenna manufacturer's instructions for adjustment of antenna.

The unit draws very small power from the line and is equipped with a one ampere fuse. The line loss in the unit has been kept to the very minimum and may be in the transmission line continuously without serious impairment to your signal level.

CAUTION: If measurements are recorded as previously outlined, do not fret if all values change when you operate on a different antenna as the adjustments and readings are affected by SWR and the length and position of the unit in the transmission line.

All parts and workmanship are warranted to ninety (90) days. DO NOT CALIBRATE. The unit should be returned to the manufacturer for recalibration on laboratory standard loads.

FREQUENCY COUNTER – The MHz, KHz function switch lets you select the count gate time for your most accurate frequency reading. The decimal point is automatically placed by the selection of the count gate time (MHz, KHz switch).

The overflow indicator only operates in the KHz position. It will indicate an overcount and remain on until the frequency is removed from the input, thus resetting the counter.

The counter features leading zero blanking, only the first zeros are displayed. When a frequency is to be measured, only the display necessary for the count will be illuminated. All other zeros above the count will remain blanked in two digit segments. Thus a 10 KHz signal with the counter in the MHz range would read .0100, the two digits in front of the decimal point would remain blanked out.

If carrier frequency measurements are performed with a high percentage of amplitude modulation present, erroneous frequency reading may be obtained. This is caused by the fact that the carrier level periodically decreases to a near zero amplitude at 100% modulation. When this occurs, the counter does not count during the entire interval and an erratic and inaccurate reading results.

USE

The primary purpose of the unit is to give positive indication to the operator of the transmitting equipment that his rig and antenna are performing correctly.

1. Be sure that the antenna has been adjusted to minimum SWR.
2. After setting up scope and wattmeter as outlined in "INSTALLATION" and "OPERATION" aforementioned, key the transmitter (no modulation) and make the setting of the dials. Measure the height of the scope pattern and read the watts output on the meter. Record these values in your log book. A check can be made any time in the future against these recorded values. (A 20% drop in scope height would probably indicate need for replacement tubes.) The previous check should be made without

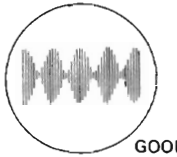
modulation as this is the only correct criterion of proper transmitter operation.

3. DOWNWARD MODULATION – A quick check can be made of your modulation by talking into the mic or whistling a tone that will cause the pattern to be stationary. If the tops of the scope pattern rise above the top of the plain RF pattern a reasonable distance (approximately 50%) you DO NOT HAVE DOWNWARD MODULATION. This term has become a fashionable misnomer due to the fact that the S Meters in receivers indicate RF only and in some cases decrease when a modulated signal is received.

4. To properly check your modulation, a 400 to 1000 Hz audio signal should be fed into the transmitter mic connections. Adjust the audio signal generator to the frequency that will give two or three stationary cycles on the scope. Over modulation occurs when the tops of the sine waves start to flatten and the troughs become a straight line. Distortion is indicated by the modulated wave form departing from the original sine waves. DO NOT OVER MODULATE – It distorts your signal at the receiver and makes reading you difficult – it causes your signal to overlap into adjacent channels – it causes you to interfere in the neighbor's television and radio – it invites FCC inspection as it's against the law.

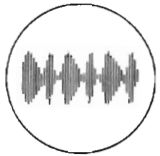
The trapezoid or (TRAP) feature of the scope, will give you a more visual inspection of your transmitted signal. With the trapezoid pattern you can check for good linerity of your signal, also distortion, insufficient antenna loading, grid current curvature, or regeneration. The trap feature will also indicate parasitics occuring on modulation peaks, excessive hum on your transmitter signal due to defective power supplies and etc. Nonlinear operation of transceiver's transmitter due to over modulation (excessive use of power mike gain), will also be shown. Nonlinear signals can be traced from transceiver to linear amplifier to poor antennas. All methods of checking the output signal of your transceiver, or linear amplifier are at your disposal, using the JB 1000 SM or JB 1001 SFC/M.

MODULATION CHART

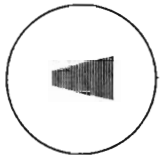


GOOD

Plate modulated AM or double sideband with carrier inserted, single tone input. Nearly 100% modulated. Excellent waveform.



Low or high level AM, single tone input. Severe distortion in modulator system or AF tone generator, RF feedback to audio system, or RF feedback to previous low level stage.



Modulation less than 100%. No distortion.

Parasitics occuring on modulation peaks.

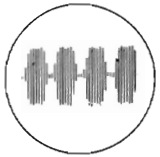
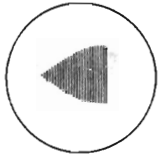


Plate Modulated AM, single tone input. Overdriven modulator incapable of 100% modulation. May also result from deliberately clipped audio not properly filtered.

Modulation peaks. Very fine, "Grassy" appearance on peaks would indicate parasitic in the UHF range.



Nonlinear. With RF trapezoid through linear amplifier; insufficient antenna loading, grid current curvature, or regeneration.

Grid modulation with improper neutralization and reactive load.

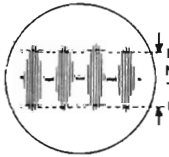


Plate Modulated AM, single tone input. Modulator output more than ample. Modulation in excess of 100% in both directions.

RF trapezoid. Good linearity. Desirable pattern.

Nonlinear. In linear operation this also indicates regeneration, or excessive grid bias.

Cut Along This Line

PURCHASE REGISTRATION Return within 10 Days of Purchase

Serial No. **JB 1000 SM / JB 1001 SFC/M** Purchase Date _____

Purchaser's Name _____

Purchaser's Address _____

City _____ State _____ Zip _____

Would you please help us in planning future product design and service by providing the following information:

OCCUPATION:
- ☐ Businessman—Professional
- ☐ Sales
- ☐ Educator
- ☐ Engineer
- ☐ Scientist
- ☐ Farmer—Rancher
- ☐ Student
- ☐ Other _____

USED MOST:
- ☐ Town—City
- ☐ Highway

PURCHASED FOR:
- ☐ Gift
- ☐ Personal Use

Make of Your Car _____

Model _____

Year _____

DID YOU SEE THIS ADVERTISED IN:
☐ Newspaper ☐ Magazine ☐ Catalog ☐ Mailer

PURCHASE REGISTRATION Owners Copy JB 1000 SM / JB 1001 SFC/M

Serial No. _____

Purchase Date _____

Where Purchased _____

LIMITED WARRANTY

Every Wawasee Electronic's unit is checked very carefully. Once in a while, a less-than-perfect unit goes out . . . or a part is missing from the package. If there is a problem with your Wawasee Electronic's purchase, we'd like to correct it. Return the unit to your dealer or distributor and they will return it to the factory.

Your Wawasee Electronic's unit is guaranteed to the original purchaser for a period of ninety (90) days from the original purchase date -- under normal use and service -- against defective materials or workmanship.

Defective parts will be repaired, adjusted, and/or replaced when it is returned prepaid to Wawasee Electronics Co., Inc. Consumer Service Facility by your dealer.

The warranty is void if unit has been visibly damaged by accident, misuse, or if it has been serviced or modified by any person other than a Wawasee Electronics Service Facility.

This warranty contains the entire obligation of Wawasee Electronics Co., Inc. and no other warranties expressed, implied, or statutory are given. The warranty is void unless the Purchase Registration Card has been properly completed and mailed to Wawasee Electronics Co., Inc. within 10 days of purchase.

IMPORTANT WARRANTY PROGRAM INFORMATION — Please read carefully

Whenever a Wawasee Electronics unit is sold to a customer, the WARRANTY CARD must be filled out by the customer and returned to the FACTORY WITHIN 10 DAYS OF PURCHASE in order for the warranty to be valid as stated in the warranty card. If a unit has been previously repaired, the yellow copy of the repair invoice must accompany it. If a unit is sent in by a Distributor or Dealer for repair, a note or copy of bill of sale must be with the unit to verify that it is an in stock unit. If a unit is being sent in FOR A CUSTOMER by his Distributor or Dealer the NAME of the CUSTOMER that will be on the warranty card should be included on a note with the unit.

SAVE YOUR ORIGINAL PACKAGE AND PACKING — If a unit is received damaged, as a result of NOT being packed in original package and packing, Wawasee Electronics and/or the carrier will not be liable for that damage.

All deemed out of warranty parts will be returned to customer upon written request at time of repair.

WARRANTY — Warranty on new units is for 90 days to original purchaser from date of purchase under normal use and service. 90 DAY WARRANTY ON UNITS repaired. Unit must be accompanied with yellow copy of repair invoice.

VOID WARRANTY — Warranty is void when the technician determines a unit has been over-driven from too much input power or from output being set too high. Any unit operated on an improper load, such as a defective antenna.

Any unit which has no warranty card on file for that particular unit within 10 days of purchase.

Any unit struck by lightning. Any unit modified or serviced improperly by persons other than Wawasee Service Facility. Any unit damaged by accident or misuse.

PLACE
STAMP
HERE

WAWASEE ELECTRONICS CO., INC.
P.O. Box 36
Syracuse, Indiana 46567