



**BLONDER
TONGUE**
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INSTRUCTION MANUAL

MUVB-45

UHF/VHF MATV
Distribution Amplifier
Stock No. 1454



651124000G

The lightning flash with arrow-head symbol within an equilateral triangle is intended to alert you to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER FROM THIS UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE

NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV System Installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

DESCRIPTION

The MUVB-45 is a 75 ohm UHF/VHF distribution amplifier featuring high gain and high output capability together with low noise and wide input range. This combination assures a wide dynamic range and provides a signal free of distortion and intermodulation products.

The MUVB-45 has full performance capability to 890 MHz, allowing use in the UHF translator band.

An FM bandstop filter in the VHF input circuit can be switched to the FM TRAP position to prevent overload in the presence of strong FM stations. High FM sensitivity, when desired, is available by switching the bandstop filter to the FLAT position.

Fully independent gain controls are provided for UHF, high band VHF and low band VHF for a wide range of input signals.

Switchable inputs are provided for use with a combined UHF/VHF antenna or separate UHF and VHF antennas. In addition, within the VHF band a combined antenna or separate high band and low band antennas may be used.

This unit employs the most modern technology for protection from lightning and power line surges.

FEATURES

- Dynamic range-increasing-type gain control improves signal-to-noise ratio at reduced gain settings.
- Switchable FM Bandstop Filter prevents overload from strong FM stations.
- 18 dB gain control range.
- Gold metallized output transistors, PIN diode gain control attenuators, and conservative design for increased reliability.
- Compact design for rack, cabinet or surface mounting.

SPECIFICATIONS**ELECTRICAL**

	VHF		UHF
	LB	HB	
Gain:	45 dB	45 dB	43 dB
Gain Control Range: (ALC Input Range)	18 dB min.	18 dB min.	18 dB min.
Noise Figure:	7.0 dB	7.5 dB	5.0 dB
Output Capability: at -46 dB Crossmodulation for:	54 dBmV 3 Ch.	54 dBmV 4 Ch.	52 dBmV 3 Ch.
Minimum Input for TASO Grade 1 (Picture Excellent):	-6.0 dBmV (500 uV)	-5.5 dBmV (530 uV)	-8.0 dBmV (400 uV)
Bandpass Flatness *:	±0.5 dB	±0.75 dB	±1.5 dB
Input return Loss *:	11 dB	11 dB	7.5 dB
Input Return Loss (FM Trap Switch "In"):	11 dB	10 dB	NA
Output Return Loss *:	13 dB	12 dB	7.0 dB

* Over an 18 dB Gain Control Range

FM Trap Depth:	21 dB (97 - 108 MHz)
Hum Modulation:	-52 dB @ 25° C
Operating Temperature:	-20° C to +65° C
Power requirements:	105 - 130 VAC, 60 Hz, 0.2 amp
Controls	
UHF Gain:	UHF/VHF Separate/Combined Switch
VHF - High Band Gain:	HB/LB (VHF) Separate/Combined Switch
VHF - Low Band Gain:	FM Band Trap Switch

MECHANICAL

Line Cord:	6 ft., 3 wire
Connectors:	4 "F" Type
	1 UHF Input
	1 VHF Low Band Input
	1 VHF High Band Input
	1 UHF/VHF Output
Fuse:	1/2 A, slow blow
Dimensions:	19" L x 2-5/8" H x 5-7/32" W
Shipping Weight:	7 lbs.

INSTALLATION

Installation of the MUVB-45 requires no special mounting procedures. It is designed for either surface or rack mounting (standard 19" equipment rack).

INPUT SIGNAL CONNECTIONS

1. Combined UHF/VHF input - Connect antenna downlead to the combined UHF/VHF INPUT. Set the UHF/VHF input switch to COMBINED, * and the HB/LB input switch to COMBINED.
2. Separate UHF and VHF inputs - Connect the respective antenna downleads to the UHF input and VHF input. Set the UHF/VHF input switch to SEPARATE, and the HB/LB input switch to COMBINED.
3. Separate VHF High Band, Low Band and UHF inputs - Connect the respective antenna downleads to the UHF Input, High Band Input, and Low Band Input. Set the UHF/VHF input switch to SEPARATE and the HB/LB input switch to SEPARATE.

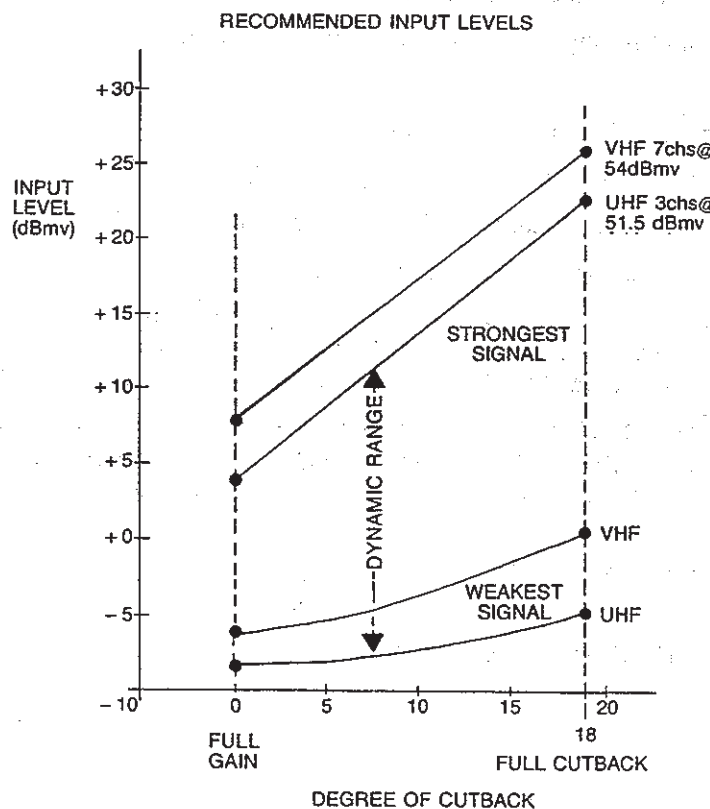
* Do Not terminate unused inputs when using the combined modes.

OPERATING SETTINGS

1. Set FM Bandstop Filter switch as desired.
2. Connect an FSM to the UHF/VHF output. Tune to the strongest UHF signal, and set the UHF Gain Control to the specified output.
3. Repeat step (2) for VHF high band and low band.

For maximum output capability the low band may be operated at a reduced level, usually 6 dB below the high band. This procedure will also help compensate for cable tilt in large distribution systems.

For most effective operation it is desirable to equalize the channels within each band, otherwise the strongest station will limit the amplifier output level. Filter mixing bases (MXF-b #3438) may be used at VHF for this purpose.



INFORMATION BELOW IS FOR QUALIFIED SERVICE PERSONNEL ONLY SERVICING

GENERAL

Maintenance of the MUVB-45 consists of in-service testing, alignment and adjustment, and corrective maintenance.

TEST EQUIPMENT: (for alignment)

VHF/UHF Sweep Generator	Variable Attenuators (2)	VHF/UHF Marker Generator
DC Oscilloscope	RF Detector	DC Voltmeter

UHF ALIGNMENT:

1. Remove screws holding the cover on the unit and remove cover.
2. Apply power to the unit. Check the power supply for proper DC voltages.
3. To expose the RF circuitry; loosen the connector mounting nuts and remove screws holding the sub-chassis cover.
4. Measure all relevant voltages and verify normal operation.
5. If RF alignment is needed proceed as follows:
 - a. Connect the unit in a test set-up for response and obtain a response trace on the oscilloscope.
 - b. Due to the high gain of the MUVB-45, reduce the input signal and insure that the unit is not in compression.
 - c. Set controls to full gain. Terminate the VHF combiner and splitter with 75 ohms.
 - d. Adjust collector matching coils L205, 208, 213, 215, 217, and 219 for maximum gain at the higher frequencies.
 - e. Adjust shunt coils L203, 204, 224, 225 for maximum gain at 470 MHz.
 - f. Adjust shunt coils, L214, 216, 218 and 220 for best flatness.
9. Check operation at all gain control settings and touch up as required for best flatness.

VHF ALIGNMENT

1. Remove screws holding cover on unit and remove cover.
2. Apply power to the unit. Check the power supply for proper DC voltages.
3. Controls are set as follows: HB/LB VHF Input to COMBINED and FM trap to FLAT.
4. Connect unit in test set-up for return loss and sweep measurement.
 - a. For the Low Band adjust coils L11, L12, and L13, for response and input return loss throughout the 0-18 dB gain control range. Check the SEPARATE Mode Low Band input. The response and input match should look similar to the COMBINED Mode. If necessary, retune coils L11, L12, and L13.
 - b. For the High Band adjust coils L1, L2, and L3 for response and input return loss throughout the 0-18 dB gain control range. Check the SEPARATE Mode High Band input. The response and return loss should look similar to the COMBINED Mode. If necessary, retune coils L1, L2, and L3. Touch up coils L201 and 202 on the UHF subassembly if needed.
 - c. For the output match adjust coils L20, L19, L22, L25, L26, and L27; also L226 and L301 on the UHF subassembly if needed.
 - d. Set the FM TRAP Switch "in". Adjust coils L8, L9, and L10 for response.

CORRECTIVE MAINTENANCE

If a problem is encountered in the operation of the unit, first check all cable and power connections for security before removing unit from service. If after checking all connections the unit appears to be inoperative, proceed as follows:

1. Check fuse F101.
2. Check the "off-the-air" input signal on the input cable with an FSM. Verify that the signal level is of sufficient strength to drive the amplifier. (See specifications).
3. If there is sufficient input signal to the amplifier and it is still inoperative, remove the unit from service.
4. Measure the input voltage from the power supply to ensure that the proper operating voltage is being supplied.
5. Units which cannot be repaired should be sent, pre-paid, with owner identification, to:

Service Department
BLONDER-TONGUE LABORATORIES, INC.
One Jake Brown Road
Old Bridge, New Jersey 08857

Limited Warranty

Blonder Tongue Laboratories, Inc. (BT) will at its sole option, either repair or replace (with a new or factory reconditioned product, as BT may determine) any product manufactured by BT which proves to be defective in materials or workmanship or fails to meet the specifications which are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing (i) for a period of one (1) year from the date of original purchase (or such shorter period of time as may be set forth in the license agreement specific to the particular software being licensed), with respect to iCentral™ (hardware and software) and all other software products (including embedded software) licensed from BT, (ii) for a period of one (1) year from the date of original purchase, with respect to all MegaPort, IPTV products and fiber optics receivers, transmitters, couplers and integrated receivers/distribution amplifiers (including TRAILBLAZER™, RETRO-LINX™ and TWIN STAR™ products) as well as for VideoCipher® & DigiCipher® satellite receivers, and (iii) for a period of three (3) years from the date of original purchase, with respect to all other BT products. Notwithstanding the foregoing, in some cases, the warranty on certain proprietary sub-assembly modules manufactured by third party vendors and contained in BT products and on certain private-label products manufactured by third parties for resale by BT are of shorter duration or otherwise more limited than the standard BT limited warranty. In such cases, BT's warranty with respect to such third party proprietary sub-assembly modules and private-label products will be limited to the duration and other terms of such third party vendor's warranty. In addition, certain products, that are not manufactured but are resold by BT, carry the original OEM warranty for that product. The limited warranty set forth in this paragraph does not apply to any product sold by BT, which at the time of sale constituted a Closeout Product.

BT will at its sole option, either repair or replace (with a new or factory reconditioned product, as BT may determine) any product sold by BT which at the time of sale constituted a refurbished or closeout items ("Refurbished Product" and "Closeout Product"), which proves to be defective in materials or workmanship or fails to meet the specifications which are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing, for a period of ninety (90) days from the date of original purchase. Notwithstanding the foregoing, in some cases, the warranty on third party software and on certain proprietary sub-assembly modules manufactured by third party vendors and contained in BT products and on certain private-label products manufactured by third parties for resale by BT are of shorter duration or otherwise more limited than the BT limited warranty for Closeout Products. In such cases, BT's warranty for Closeout Products constituting such third party software, third party proprietary sub-assembly modules and private-label products will be limited to the duration and other terms of such third party vendor's warranty. In addition, notwithstanding the foregoing, (i) certain Closeout Products that are not manufactured (but are resold) by BT, carry the original OEM warranty for such products, which may be longer or shorter than the BT limited warranty for Refurbished or Closeout Products. All sales of Refurbished or Closeout Products are final.

To obtain service under this warranty, the defective product, together with a copy of the sales receipt or other satisfactory proof of purchase and a brief description of the defect, must be shipped freight prepaid to: Blonder Tongue Laboratories, Inc., One Jake Brown Road, Old Bridge, New Jersey 08857.

This warranty does not cover damage resulting from (i) use or installation other than in strict accordance with manufacturer's written instructions, (ii) disassembly or repair by someone other than the manufacturer or a manufacturer-authorized repair center, (iii) misuse, misapplication or abuse, (iv) alteration, (v) lack of reasonable care or (vi) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

OTHER THAN THE WARRANTIES SET FORTH ABOVE, BT MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND, EXPRESS OR IMPLIED, AS TO THE CONDITION, DESCRIPTION, FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR AS TO ANY OTHER MATTER, AND SUCH WARRANTIES SUPERSEDE ANY ORAL OR WRITTEN WARRANTIES OR REPRESENTATIONS MADE OR IMPLIED BY BT OR BY ANY OF BT'S EMPLOYEES OR REPRESENTATIVES, OR IN ANY OF BT'S BROCHURES, MANUALS, CATALOGS, LITERATURE OR OTHER MATERIALS. IN ALL CASES, BUYER'S SOLE AND EXCLUSIVE REMEDY AND BT'S SOLE OBLIGATION FOR ANY BREACH OF THE WARRANTIES CONTAINED HEREIN SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT F.O.B. SHIPPING POINT, AS BT IN ITS SOLE DISCRETION SHALL DETERMINE. BT SHALL IN NO EVENT AND UNDER NO CIRCUMSTANCES BE LIABLE OR RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, PUNITIVE, DIRECT OR SPECIAL DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT LIABILITY OR OTHERWISE OR ANY OTHER LEGAL THEORY ARISING DIRECTLY OR INDIRECTLY FROM THE SALE, USE, INSTALLATION OR FAILURE OF ANY PRODUCT ACQUIRED BY BUYER FROM BT.

All claims for shortages, defects and non-conforming goods must be made by Buyer in writing within five (5) days of receipt of merchandise, which writing shall state with particularity all material facts, concerning the claim then known to Buyer. Upon any such complaint, Buyer shall hold the goods complained of intact and duly protected, for a period of up to sixty (60) days. Upon the request of BT, Buyer shall ship such allegedly nonconforming or defective goods, freight prepaid to BT for examination by BT's inspection department and verification of the defect. BT, at its option, will either repair, replace or issue a credit for products determined to be defective. BT's liability and responsibility for defective products is specifically limited to the defective item or to credit towards the original billing. All such replacements by BT shall be made free of charge f.o.b. the delivery point called for in the original order. Products for which replacement has been made under the provisions of this clause shall become the property of BT. Under no circumstances are products to be returned to BT without BT's prior written authorization. BT reserves the right to scrap any unauthorized returns on a no-credit basis. Any actions for breach of this contract must be commenced by Buyer within thirteen (13) months after the cause of action has accrued. A copy of BT's standard terms and conditions of sale, including the limited warranty, is available from BT upon request. Copies of the limited warranties covering third party proprietary sub-assembly modules and private label products manufactured by third parties are also available from BT on request. VideoCipher® & DigiCipher® are registered trademarks of Motorola Corp.



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