

Bensa 300H Ser 630  
24283

## OPERATING INSTRUCTIONS

### BENSON AMPLIFIER MODELS 300H and 330H

Front Panel Controls - Examine the front panel to familiarize yourself with the features; they will be explained below.

Channel 1 is a straight-through amplifier which does not use any of the special feature circuits (except stress). Channel 2 is wired to use the reverb, fuzz, tremolo, equalizer and stress.

The rear of the amplifier contains the power cord, accessory a.c. socket, pre-amp outputs, speaker jacks, equalizer socket and foot switch socket. The equalizers and foot switch assemblies are accessories which add flexibility to your amplifier. The equalizers are easily interchanged and modify the tone response of channel 2. They are plug-in devices so that your amplifier will not become obsolete. A variety of plug-in equalizers are manufactured by BENSON to give variety to the sound of your amplifier. As new types of sound become popular and to modify the amplifier to be compatible with any of the newly amplified instruments (i.e., accordion, woodwinds, brass, electric keyboard, etc.), new equalizers will be made to tune your amplifier to these without requiring internal wiring changes.

The foot switch control of the reverb, fuzz and tremolo is accomplished by an internal relay and special circuits. This allows the amplifier to work properly without a foot switch, or with either short or long cord foot switches.

### OPERATING INSTRUCTIONS FOR YOUR BENSON AMP

STEP #1 Plug the amp into a suitable 117 volt A.C. electrical outlet only.

STEP #2 The POWER SWITCH located at the far right of the front panel is a combination ON-OFF-ON polarity (ground) switch and pilot light.

To turn the power on, press the switch at either top or bottom. If excessive noise is present (i.e., hum or snapping sounds when you touch the pickup or other grounded metal parts), reverse the polarity by pushing the switch at the opposite end. For maximum safety, your amp should always be operated at the quietest position of the switch. The unit is turned off when the switch is returned to the center position.

STEP #3 CHANNEL 1 is a conventional channel consisting of two INPUTS A & B, a BRITE SWITCH, VOLUME CONTROL, BASS CONTROL, TREBLE CONTROL, AND CHANNEL 1 OFF-ON CONTROL.

Note: FUZZ, REVERB and TREMOLO cannot be used in Channel 1. However, the STRESS CONTROL, to be explained under STEP #4, CHANNEL 2, does function in Channel 1.

If only one instrument is being used, it should always be plugged into the input marked "A".

It should be remembered that your BENSON amp has a noticeably greater range in all of its controls than other amps and any adjustments in tone or volume, etc., should be made carefully to avoid over-adjustment

If the TONE CONTROLS (BASS & TREBLE) are positioned straight up at about 50% on the dial, with the BRITE SWITCH off, the frequency response curve will be flat. From this setting, fine tuning adjustments can be made to compensate for various instruments or pickups.

**STEP #3** If more HIGHS are needed for a brighter sound, push the BRITE SWITCH (cont'd.) on, and readjust the TONE CONTROLS to complement this new setting.

Because your BENSON amp is capable of an extreme amount of highs, it may be more sensitive to externally induced noise of equipment (i.e., neon lights or machinery) than the average amp. This can only be controlled by backing off the TREBLE CONTROLS.

Note: The plug-in TONE EQUALIZER on the BACK PANEL does not affect Channel 1.

**STEP #4** CHANNEL 2: The operation of Channel 2 is identical to that of Channel 1. The sensitivity and loudness of Channel 2 may be increased by switching Channel 1 off (switch located on Channel 1 Volume Control).

The STRESS CONTROL is intended to actually disable the power capabilities of the amp in order to produce the natural overload distortion found in a severely overloaded small amp.

The stress is actuated by means of a pull switch located on the STRESS CONTROL. The amount of stress can now be controlled by manipulation of the CONTROL KNOB. As the control is advanced toward 10, the amount of stress increases, with a corresponding decrease in overall volume. Volume Control(s) should be advanced as desired. The STRESS CONTROL affects both Channels equally.

IMPORTANT: If the TONE EQUALIZER is not plugged into the BACK PANEL, Channel 2 will not function properly (for the equalizers to have full effect, the tone controls must be turned up).

**STEP #5** REVERB: The REVERB CONTROL consists of a REVERB gain. As the control is turned toward 10 on the dial, the amount of reverb increase.

**STEP #6** FUZZ: The FUZZ CONTROLS consist of an ON-OFF-PULL switch combined with an attack control and a gain control. The attack control determines the quality of the FUZZ, and the gain controls the amount or loudness of FUZZ.

IMPORTANT: When the FUZZ switch is on, remember that the attack and gain controls must also be on in order to get any sound out of Channel 2 (only).

As with all such FUZZ circuits, some noise is present at higher FUZZ levels.

**STEP #7** TREMOLO: The TREMOLO CONTROLS consist of a combination ON-OFF-PULL switch depth control and a rate control.

The rate controls the speed of the TREMOLO. In that your BENSON TREMOLO can be varied from extremely slow to extremely fast, minute adjustments will affect the rate greatly.

The depth control also has extreme range; it is possible to go from no depth at all through the normal depth range and continue on to extreme depth, producing a repeater effect. This setting, used in conjunction with the REVERB, improves the repeating effect greatly.

**STEP #8** BACK PANEL: The equipment on the BACK PANEL consists of a standard FUSE HOLDER and an auxiliary 117 volt A.C. outlet.

IMPORTANT: The auxiliary AC outlet is unfused. This simply means that your BENSON amp is adequately protected by its own fuse. But any external equipment plugged into your unit must carry its own fuse.

There are two SPEAKER OUTLETS. A Speaker must be plugged into Jack I for the unit to function.

The plug-in TONE EQUALIZER plugs into a standard octal type socket. These equalizers contain circuitry designed to modify the BASIC RESPONSE CURVES of your amp, thereby affecting the tone greatly. It is recommended that you experiment with various equalizers to arrive at the basic type of amplifier sound you desire.

IMPORTANT: Remember that the TONE EQUALIZERS affect Channel 2 only.

The REVERB-FUZZ-REMOTE is a receptacle for a FOOT SWITCH, which is optionally available for controlling the ON & OFF functions of the FUZZ-REVERB and TREMOLO.

PRE-AMP OUTPUT JACKS: The Channel 2 is a high impedance output to be plugged into an input of any other amplifier or to use for going "Direct" in a recording studio (enables you to go direct but through your Tone Controls).

Channel 1 Jack works the same when plugged into the first click. When you push it into the second click, Channel 1 is disconnected from the output and may be rerouted around and into Channel 2-B on the Front Panel, thereby enabling you to duplicate the effects of "Power Boosters," "Gain Boosters," Treble Boosters," "Bass Boosters," and various overload devices. Your instrument, of course, has to be plugged into Channel 1-A on the Front Panel. Settings too high could cause acoustic feedback through your instrument or within the unit.

The possibilities when doing the above are almost limitless. Here are a few settings and sounds we find useful as examples:

1. Gain Boost: Instrument plugged into Channel 1-A; Pre-amp output Channel 1 (insert fully) on back, plugged into Channel 2-B on front; Channel 1 Bass on 5, Treble on 5, Volume on 3, High switch off; Channel 2 set as desired.
2. Treble Boost: Same as above with Treble added as desired.
3. Low Level Sustain: Same setup except set controls as follows: Channel 1 and 2 Bass 5, Treble 5, Volume 5, Highs off; Fuzz on Gain 6, Attack 8; Stress on 8½; Use front or Rhythm pickup on guitar and set to Full Bass.
4. Try putting a foot-operated Volume Control between Channel 1 pre-amp out and Channel 2-B.

All of the above suggestions are just starting points -- Take it from there, and have a ball!!

IMPORTANT: If the FOOT SWITCH is to be used, the PANEL SWITCHES for FUZZ and TREMOLO should be pushed in to the OFF positions; otherwise, the FOOT SWITCH will not turn them off.

#### TROUBLESHOOTING

EXCESSIVE HUM: Inspect the large glass OUTPUT TUBES. If one of these is not functioning, this will cause hum and distortion. Sometimes a cherry-red glow on the plate of one of these tubes will accompany the hum. That is an indication of a bad tube. If you reverse these two tubes and the cherry-red glow stays with the same tube, that indicates a faulty OUTPUT TUBE that should be replaced.

NO SOUND IN CHANNEL 2: Check the FUZZ CONTROLS as explained under STEP #6.

NO SOUND OUT OF AMP: Check the speaker connections.

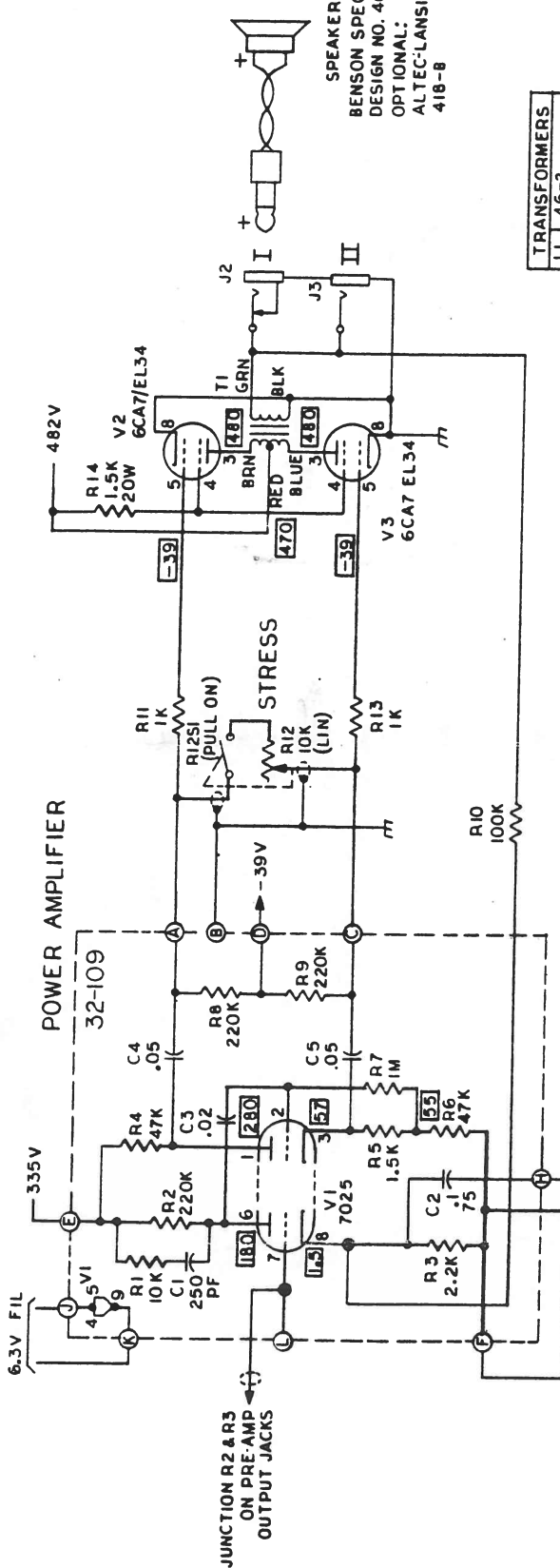
LOW VOLUME IN CHANNEL 2: Check and make sure that the TONE EQUALIZER is plugged into the BACK PANEL.

PILOT LIGHT AND TUBES DO NOT LIGHT: Check the FUSE and make sure the amp is plugged into an A.C. outlet.

STEADY FRYING NOISES: These are common when you are around neon lights and using a lot of HIGHS.

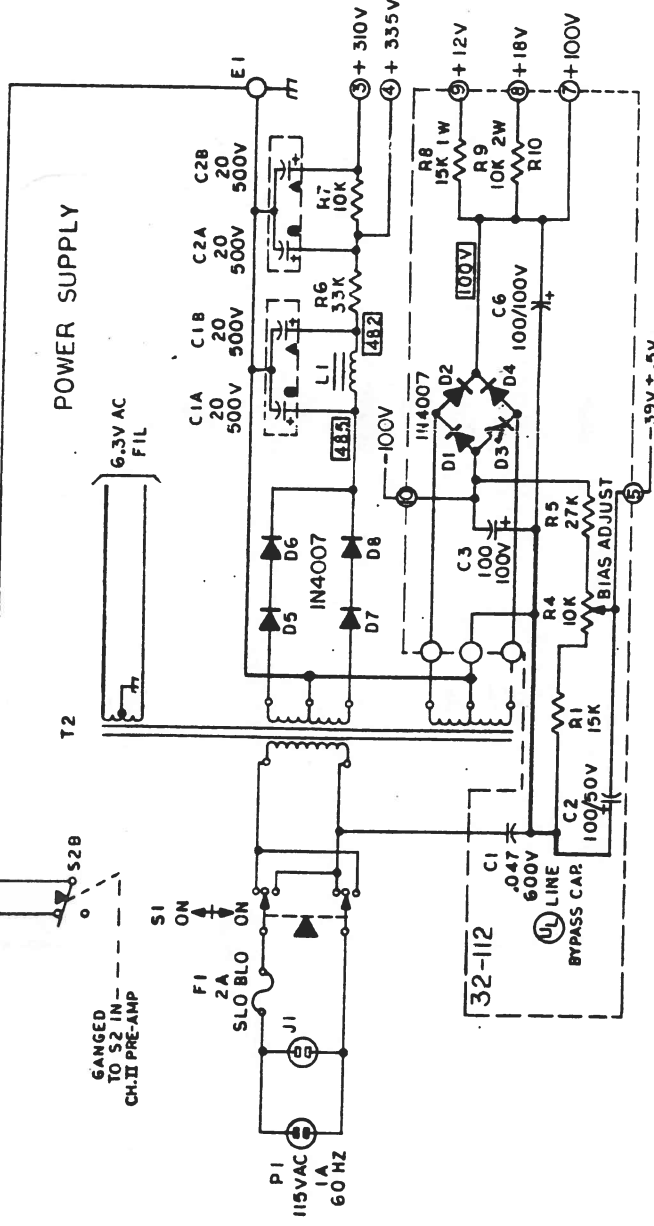
INTERMITTENT FRYING NOISES: This may indicate a bad tube.

NOTE: ELECTRIC PIANO and other low output instruments can make good use of the double channel jacking arrangement. Plug the piano into Channel 1. Run a jack cord from Channel 1 out to Channel 2 input and the gain available from both stages will be cascaded. Very careful setting of the controls will have to be tried to find the right mode of operation. Start with all tone controls at "5". Set Channel 2 gain at "3" and slowly advance Channel 1 gain until the desired loudness is achieved. The Channel 1 and Channel 2 gain controls have to have the proper relative settings to avoid overdriving either preamp with resultant distortion. Experiment with the two gain controls, moving each half a division at a time until the best sound is obtained. The tone controls can then be cautiously varied to produce the desired response curve.



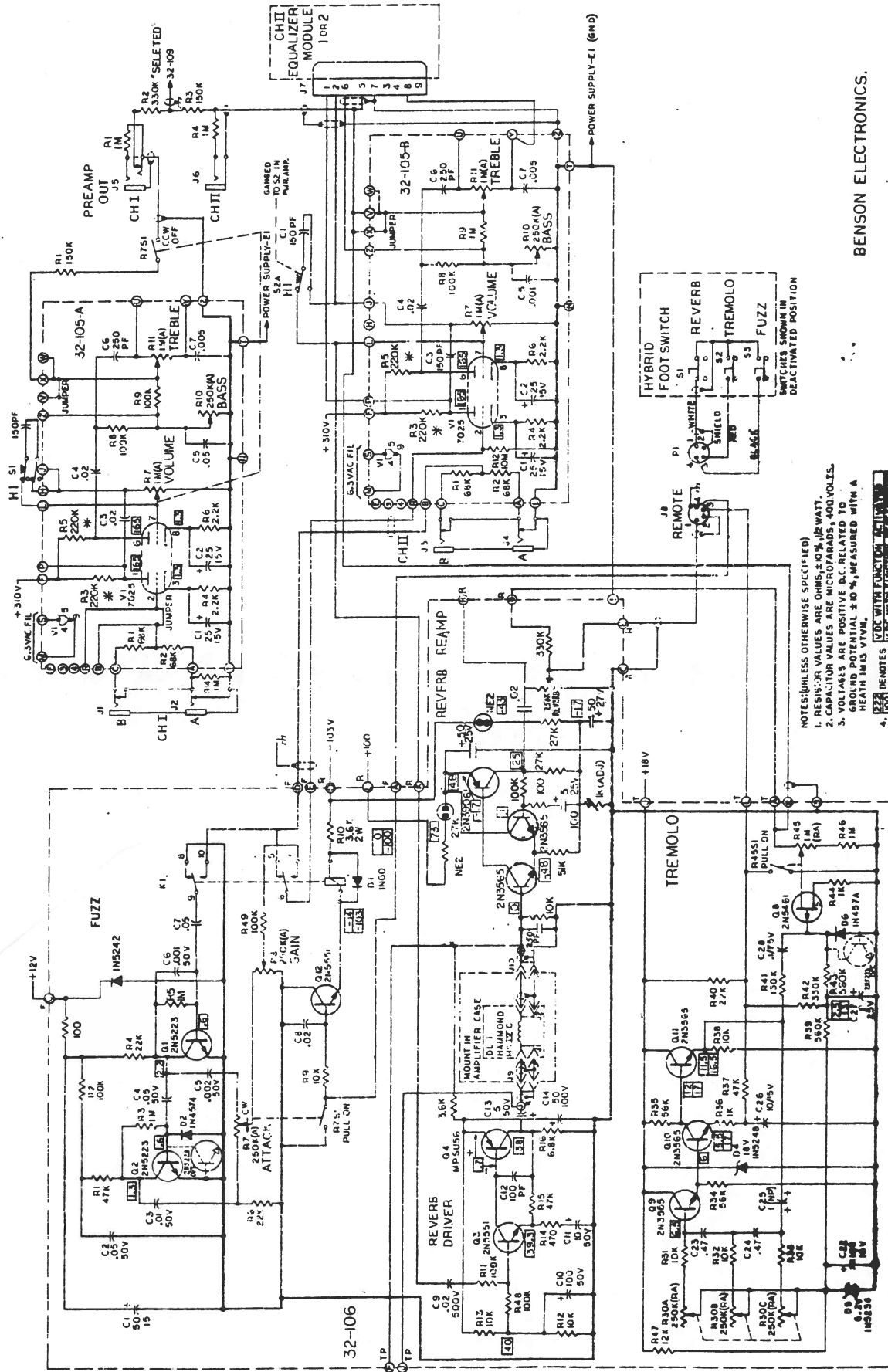
SPEAKER  
 BENSON SPECIAL  
 DESIGN NO. 401-7  
 OPTIONAL:  
 ALTEC-LANSING  
 418-B

TRANSFORMERS	
T1	46-2
T2	51-5
T3	54-18



NOTES: (UNLESS OTHERWISE SPECIFIED)  
 1. RESISTOR VALUES ARE OHMS ± 10% 1/2 WATT.  
 2. CAPACITOR VALUES ARE MICROFARADS,  
 400 VOLTS.  
 3. VOLTAGES ARE POSITIVE D.C. RELATED  
 TO GROUND POTENTIAL ± 10% MEASURED  
 WITH A HEATH 1M13 VTVM.  
 4. MINOR IMPROVEMENT CHANGES MAY  
 BE MADE BY BENSON, INC. WITHOUT  
 NOTIFICATION.

BENSON ELECTRONICS  
 CALIFORNIA  
 MODEL 300H  
 POWER SUPPLY & POWER AMPLIFIER  
 DRAWING NO. 700-52A  
 SER# 6000 ON  
 MAY 1972

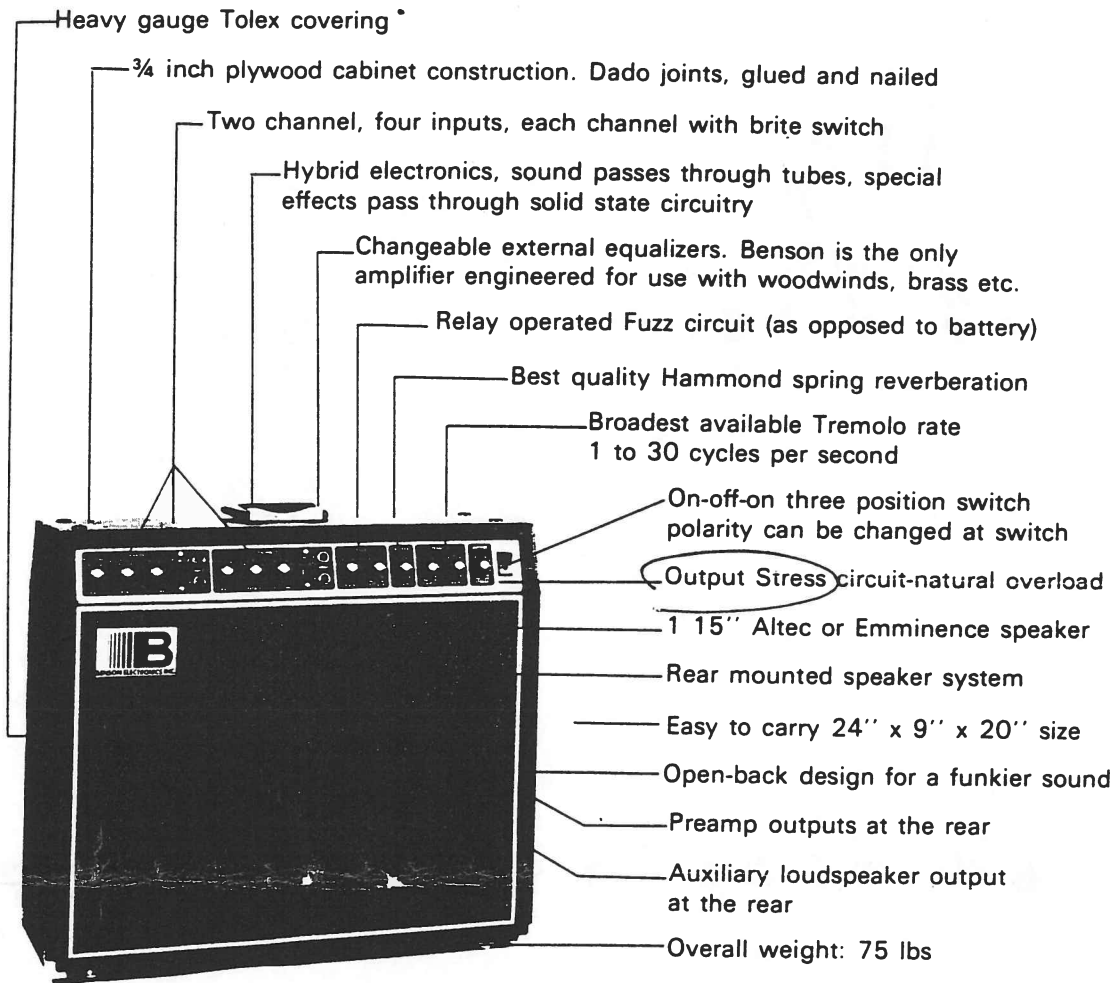


NOTES UNLESS OTHERWISE SPECIFIED:

1. RESISTOR VALUES ARE OHMS, 2.0%, 1/8 WATT.
2. CAPACITOR VALUES ARE MICROFARADS, 400 VOLTS.
3. \* VALUES ARE POSITIVE D.C. RELATED TO HEATH I.M.I.S. SYSTEM.
4. **REAR** DENOTES **REAR WITH FUNCTION** SWITCHES SHOWN IN DEACTIVATED POSITION.
5. **⊕** DENOTES SOLDER POINT IN \_\_\_\_\_ SECTION.
6. \* INDICATES LOW NOISE.

**BENSON ELECTRONICS.**

MODELS 300V & 400H  
 DRAWING & SPECIAL FUNCTIONS SCHEMATIC  
 DRAWING NO. 700-51A  
 MAY 1972



Equalizer Plug Number	1	2	3	4	5	6
Rock		X			X	X
Jazz	X			X		
Country		X				X
Electric Bass	X	X	X			
String Bass		X				
Steel Guitar	X	X				
Harp	X	X				
Trumpet	X				X	
Woodwind					X	
Bass Sax	X	X			X	
Trombone	X	X			X	
Vibes					X	
Electric Piano	X	X				
Voice	X	X	X			X
Organ	X	X				
Electric Violin					X	

# The Benson Howard Roberts Models 300 HRA — HRE

The most functional all around professional amplifier available. Originally designed to meet the varying requirements of daily studio work, the open back, tube type design allows for pleasing harmonic distortion with unrestricted speaker cone travel at high volume. The Roberts models include built-in reverb, pulse tremolo, out-put stress control, preamp outputs, built-in distortion unit and changeable equalizers. The Howard Roberts models are rated in excess of 50 watts RMS. Available with a choice of speakers.

The Benson 300 HR Series has been the standard west coast recording studio unit for well over ten years. Today's demand for recording quality sound from on stage presentations is an itch the Benson can scratch.

**BENSON EQUALIZERS**  
Each Benson amplifier comes equipped with standard #1 equalizer plug. For special requirements select these optional Equalizers by number.



Howard Roberts, designer of the HR Series



**BENSON ELECTRONICS**

**PRODUCT WARRANTY**

BENSON ELECTRONICS hereby warrants its products to be free from defects in workmanship or material. We will correct any defect in workmanship or material which it determines by our own inspection to have been present in original manufacture.

This warranty shall be effective from the date of purchase from an authorized Benson dealer for a period of 90 DAYS, OR ONE YEAR. If card is returned to Benson Electronics within 15 days of date of purchase thereafter provided the amplifier is returned to the Benson factory or authorized Benson service station shipping prepaid. If after our inspection it is determined that the amplifier was subject to normal use and care and that the deficiency was not the subject of misuse, abuse, modification, alteration, negligence or accident or unauthorized repair, Benson will correct the deficiency and return the amplifier shipping paid to the owner within the United States.

This warranty is in lieu of all other warranties and shall not be modified in any respect by any individual. The warranty shall not extend to tubes, fuses, or speakers which are the subject of the manufacturers warranty, nor does it extend to speaker cones or diaphragms in any respect.

Benson Electronics will do its utmost to comply with this warranty but assumes no responsibility for delays, loss of use, equipment unavailability or any interference due to acts of God, strikes, lockouts, war, government, transportation limitations, weather or other causes beyond its control.

This warranty extends to the original registered Benson purchaser ONLY and is not assignable or transferable.

Authorized Benson Dealer  
Date of Purchase  
Registered Benson Owner

Dec. 75

Pat Hicks

Model #

Serial #

1193