

SER # AY2

BOULDER 160 POWER AMPLIFIER

Installation Instructions - 11/14/83

Congratulations on your choice of the Boulder 160 Power Amplifier. In order to realize the full sonic potential of this amplifier, we ask that you take a few minutes to read these instructions.

The Boulder 160 is a two stage amplifier with the first being a differential input JE-990 operational amplifier circuit having 20 dB of voltage gain. This allows the second stage to operate at only 6 dB of gain. Level controls (on most models) are provided between the stages to allow checking the input signal when first connected or patched.

The optimum setting of the level controls is in the "0" (full clockwise) position. This ensures that the first stage will not be near its clipping point. If necessary, up to -3 dB of attenuation may be used without risking audible clipping. Further attenuation should only be used for reduced output level situations such as muting. The clip lights do not indicate first-stage clipping.

The clip lights will start to illuminate somewhat (1-6 dB) before actual clipping occurs depending on the particular loudspeakers used. Therefore, some occasional clip indication at high levels is allowable.

The amplifier is shipped with the differential inputs disabled, since unbalanced mode is most often used. To enable the differential mode, move the jumpers on the PC board from "UNB" to the "BAL" position. NOTE: If the unbalanced Phono inputs are used, the input mode should be left unbalanced by setting the jumpers to the "UNB" position. Alternately, unbalancing may be accomplished by connecting pin 2 (Io) of the 3-pin input connector to pin 1 (ground).

*ground pin 2
BAL better
common mode
rejection*

The phase of the amplifier is such that a positive-going transition at pin 3 or the phono jack will produce a positive-going transition at the "+" (red) output terminal.

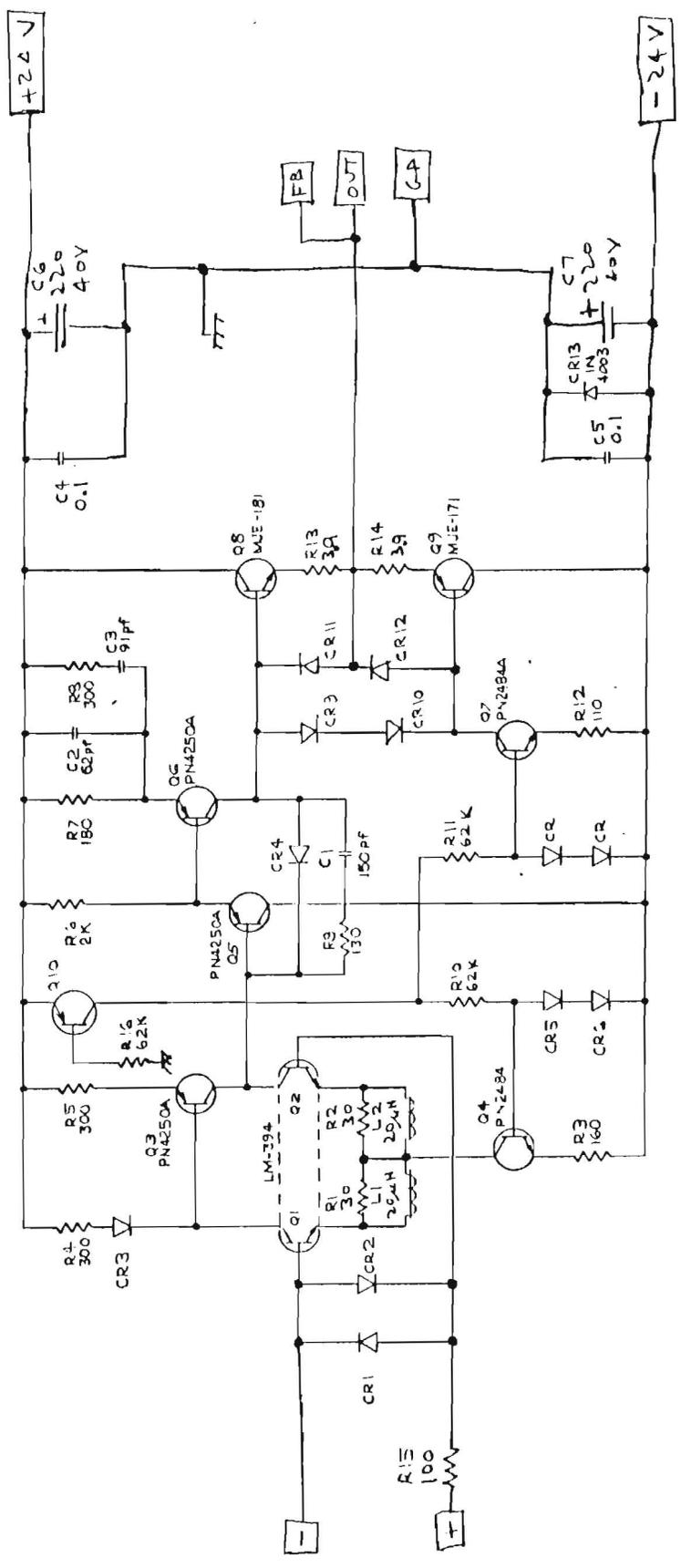
For mono operation, push the rear panel switch so that it stays in the "in" position. Only signals into the left input are used in mono. The left channel red output terminal is now "+", and the right channel red output terminal is now "-". Note the markings on the rear panel.

Because of current-limiting protection circuits, it is not recommended to drive a 4 Ohm (or less) load in mono operation. No further headroom will be available in mono operation (as compared to stereo) into 4 Ohms. Also, the damping ratio is halved in mono operation, which may affect sonic qualities.

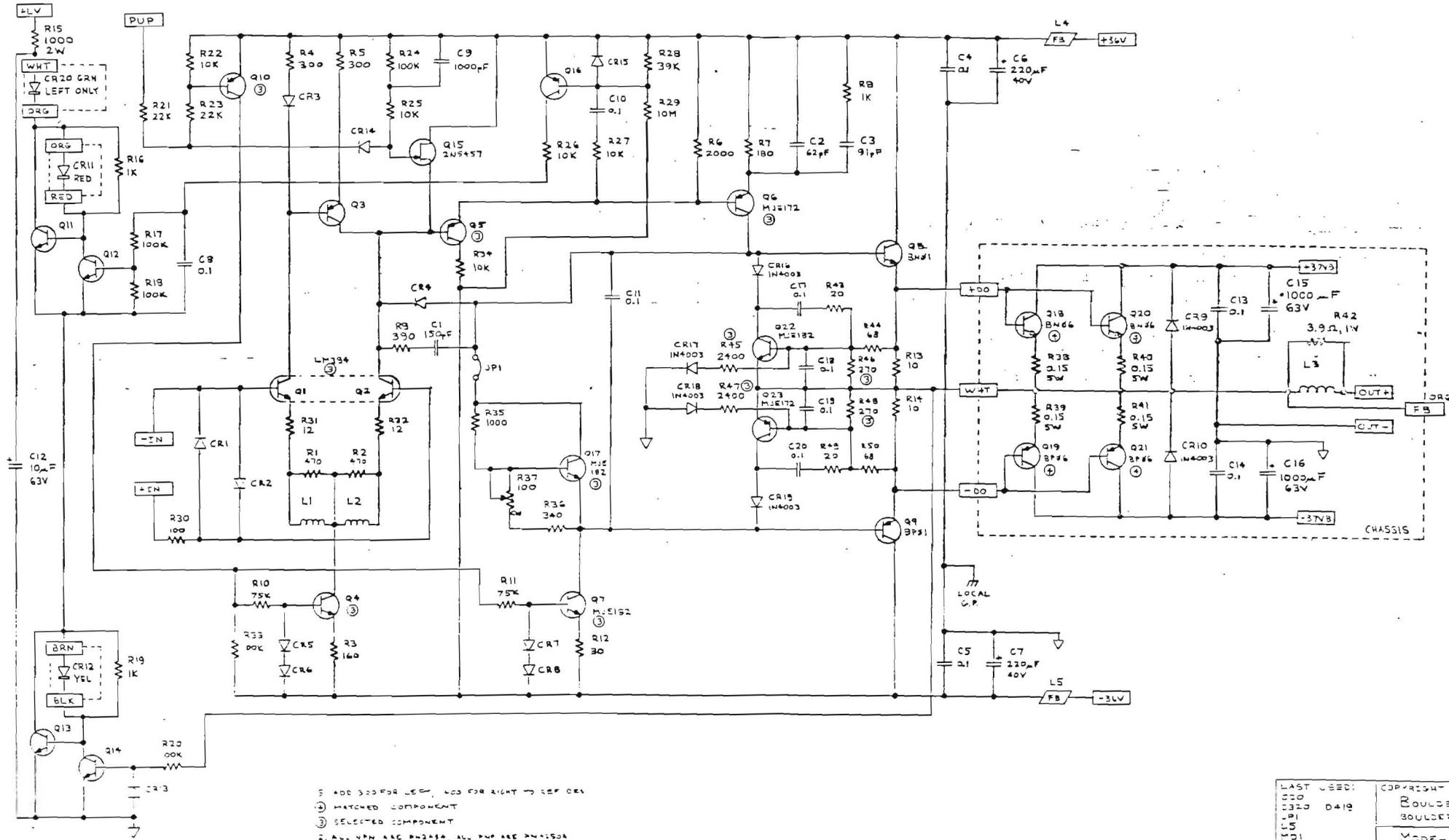
For best sonic results, we recommend the use of low characteristic impedance speaker cable. A coaxial type such as Mogami #2477 or #2513 has high distributed capacitance giving impedances lower than 10 ohms. Care should be used when trying this cable on other amplifiers, as the distributed capacitance may cause less stable designs to oscillate.

A termination network of .022uF in series with 10 ohms should be used at the speaker terminals to reduce reflections in the speaker cable. These values really depend on the speaker impedance above 20KHz, but in most instances will work well.

The green indicator light in the circuit breaker will remain steadily on when powered up. A blinking indication shows either a thermal overload (which takes about 2 minutes to reset itself) or loss of mains power to the amplifier. This latter indication will only last about 25 seconds.

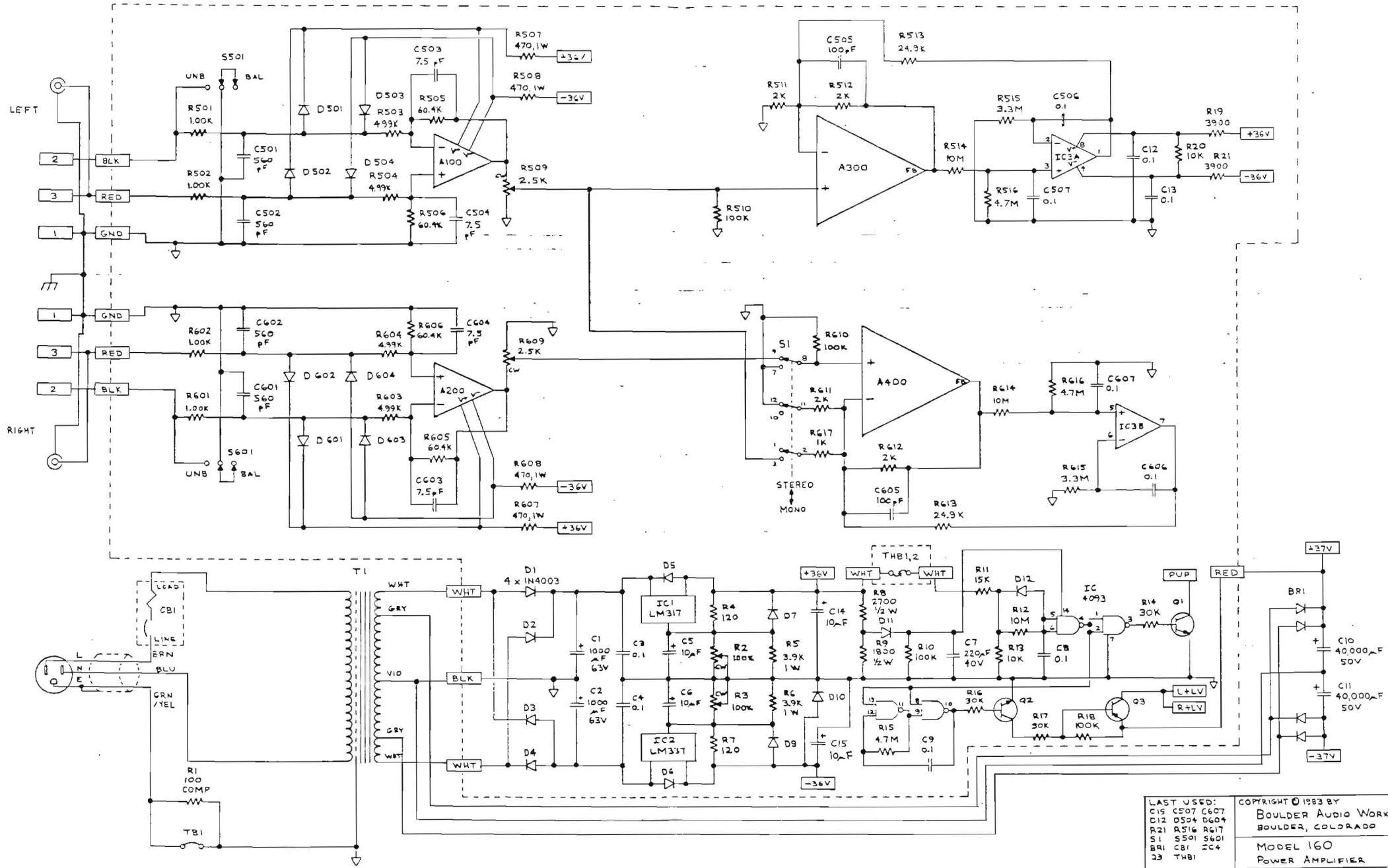


1. ADD 100 FSR LEFT, 200 FOR RIGHT TO REF DES.
NOTES:



① 400 300 FOR LEFT, 400 FOR RIGHT → LEFT OK
 ② MATCHED COMPONENT
 ③ SELECTED COMPONENT
 2. ALL VBN ARE PHASES, ALL PUP ARE PHASES
 3. ALL RESISTORS IN OHMS, CAPS IN μF
 NOTES: (V.D.S.)

LAST USED: C10 C12 0.1 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38 C39 C40 C41 C42 C43 C44 C45 C46 C47 C48 C49 C50 C51 C52 C53 C54 C55 C56 C57 C58 C59 C60 C61 C62 C63 C64 C65 C66 C67 C68 C69 C70 C71 C72 C73 C74 C75 C76 C77 C78 C79 C80 C81 C82 C83 C84 C85 C86 C87 C88 C89 C90 C91 C92 C93 C94 C95 C96 C97 C98 C99 C100 C101 C102 C103 C104 C105 C106 C107 C108 C109 C110 C111 C112 C113 C114 C115 C116 C117 C118 C119 C120 C121 C122 C123 C124 C125 C126 C127 C128 C129 C130 C131 C132 C133 C134 C135 C136 C137 C138 C139 C140 C141 C142 C143 C144 C145 C146 C147 C148 C149 C150 C151 C152 C153 C154 C155 C156 C157 C158 C159 C160 C161 C162 C163 C164 C165 C166 C167 C168 C169 C170 C171 C172 C173 C174 C175 C176 C177 C178 C179 C180 C181 C182 C183 C184 C185 C186 C187 C188 C189 C190 C191 C192 C193 C194 C195 C196 C197 C198 C199 C200 C201 C202 C203 C204 C205 C206 C207 C208 C209 C210 C211 C212 C213 C214 C215 C216 C217 C218 C219 C220 C221 C222 C223 C224 C225 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LAST USED:
 C15 C507 C607
 D12 D504 D604
 R21 R516 R617
 S1 S501 S601
 BR1 CB1 IC4
 D3 THB1

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