Sound Lab Mini-Synth Mark II Voltage Controlled Oscillator 2 C19 Design by Ray Wilson R75 Coarse Freq Adi. R77 -12V +12V 0 ō Notes (a)39K 36K 4.7pF U6 can be any of these: LF442, LF412, LT1112, AD706, OP275 PN4391 can be replaced with: 2N5457, J210 or MPF102 R80 R76 100K 2 All diodes are 1N914 or 1N4148 +12V 1M **R78** R79 High Freq. Comp. Trim Fine Freq Adj. 110K 9.1K U8-B R82 † 2 TL072 R83 R81 100K R84 2 4.7K 4.7K 100K D4 +12V +/-5V Rect. +12V +/-5V Sawtooth 0 - X29 X28 R85 Raw 3 R86 Rect - X27 3 R88 R89 ≤3.3K Out 10K U8-A 100 ohm 2N3904 2N3904 R90 U6-A TL072 Q10 Q11 **R87** LF442 20K 22K Raw Sawtooth Out 4.7M 1V/Oct **←** X30 -12V Scale Trim R91 U6-B R93 -12V LF442 R92 6 100K R95 R96 R98 475 ohm 20K 47K 3K 2K C21 PWM Input Exp CV R94 C20 R100  $\left( \nabla \right)$ Input R99 X32 +12V 10K 4.7pF KBV AD2A 100K \d R102 1.2M R101 100pF 47K S4 R97 1M For best results R98 should be R104 U7-A a 2K temperature compensator 100K with +3300 ppm response TL072 +12V 10K U7-B placed in thermal contact with TL072 Q10 and Q11. Q10 and Q11 R106 S5 R103 should be a matched pair with VBE matched to within 2mV. -12V C22 100K 100K R108 +12V Pulse Width (a)-12V -Lin CV .005uF Polystyrene 10K R105 Input LFOA SAH R109 X36 D 1M Q12 PN4391 2K Bypass Caps Sync +12V C29 Input R110 R107 100K X37 R111 +1+ C24 C23 C25  $\langle a \rangle$ 1K 10uF √.1uF √.1uF .001uF C30 R112 100K √100pF 100K +1 <u>+</u> C27 C28 R113 C26 \.1uF \.1uF -12V 18K Copyright Music From Outer Space 2011