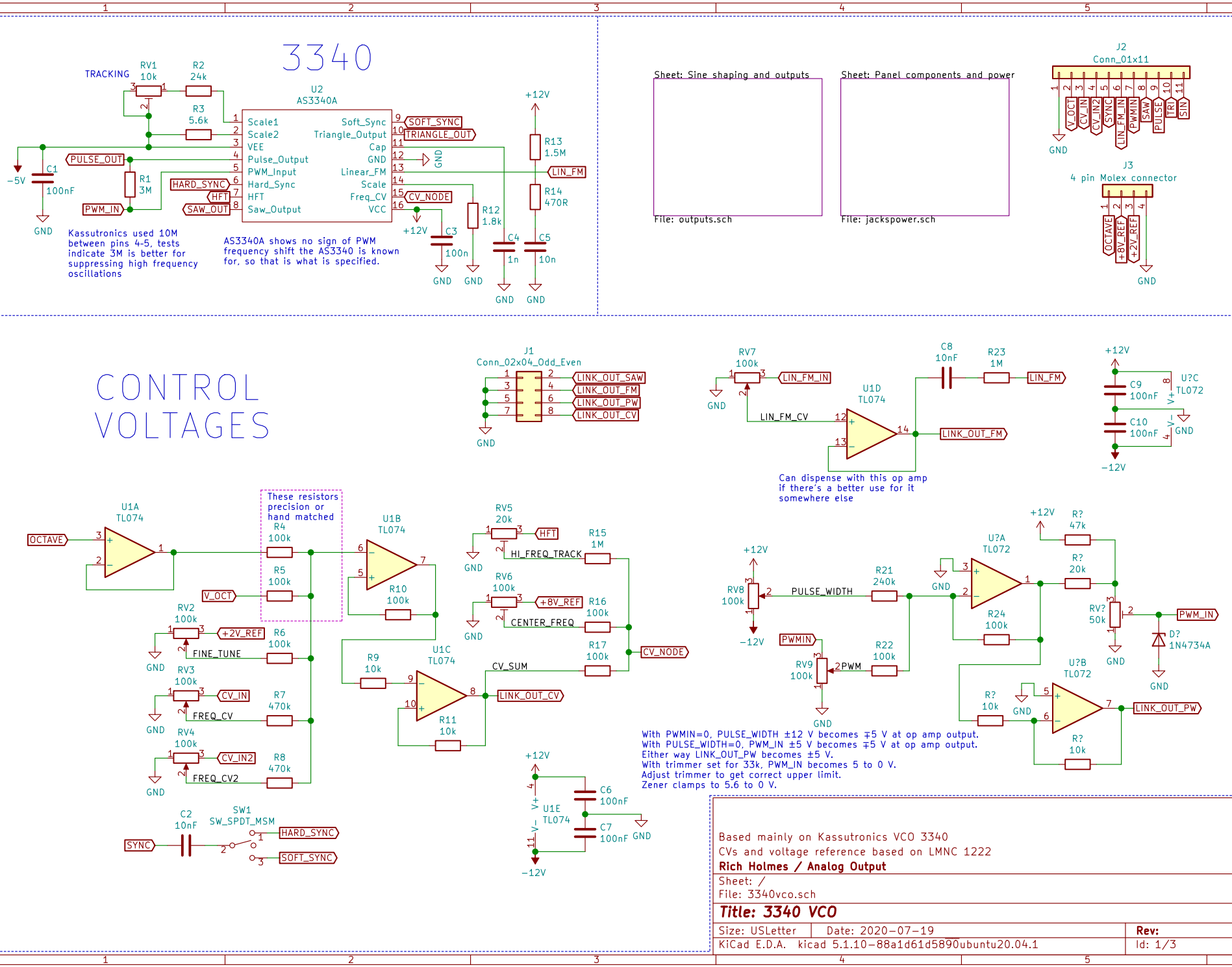
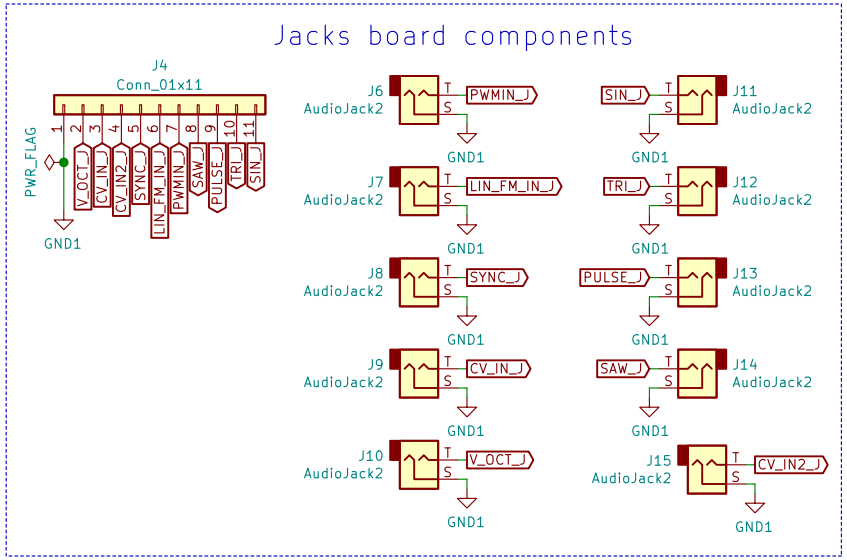
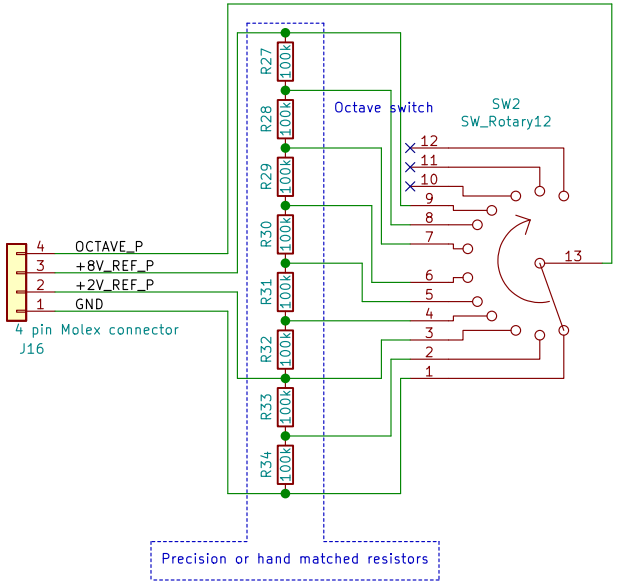
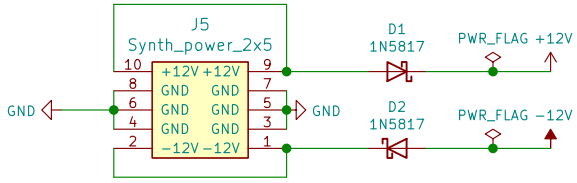
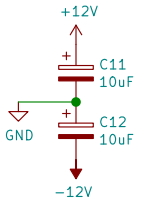
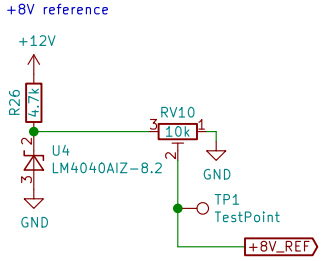

3340
TRACKING
RV1
10k
R2
24k
R3
5.6k
U2
AS3340A
Scale1
Scale2
VEE
Pulse_Output
PWM_Input
Hard_Sync
HFT
Saw_Output
Soft_Sync
Triangle_Output
Cap
GND
Linear_FM
Scale
Freq_CV
VCC
SOFT_SYNC
TRIANGLE_OUT
CV_NODE
PULSE_OUT
HARD_SYNC
HFT
SAW_OUT
PWM_IN
LIN_FM
+12V
-5V
C1
100nF
R1
3M
R13
1.5M
R14
470R
R12
1.8k
C3
100n
C4
1n
C5
10n
Kassutronics used 10M between pins 4-5, tests indicate 3M is better for suppressing high frequency oscillations
AS3340A shows no sign of PWM frequency shift the AS3340 is known for, so that is what is specified.
Sheet: Sine shaping and outputs
File: outputs.sch
Sheet: Panel components and power
File: jackspower.sch
J2
Conn_01x11
V-OCT
CV_IN
CV_IN2
SYNC
LIN_FM_IN
PWMIN
SAW
PULSE
TRI
SIN
J3
4 pin Molex connector
OCTAVE
+8V_REF
+2V_REF
CONTROL VOLTAGES
J1
Conn_02x04_Odd_Even
LINK_OUT_SAW
LINK_OUT_FM
LINK_OUT_PW
LINK_OUT_CV
RV7
100k
LIN_FM_IN
LIN_FM_CV
U1D
TL074
C8
10nF
R23
1M
LIN_FM
LINK_OUT_FM
Can dispense with this op amp if there's a better use for it somewhere else
U?C
TL072
C9
100nF
C10
100nF
U1A
TL074
OCTAVE
These resistors precision or hand matched
R4
100k
R5
100k
V_OCT
U1B
TL074
R10
100k
RV2
100k
+2V_REF
R6
100k
FINE_TUNE
RV3
100k
CV_IN
R7
470k
FREQ_CV
RV4
100k
CV_IN2
R8
470k
FREQ_CV2
R9
10k
U1C
TL074
R11
10k
RV5
20k
HFT
R15
1M
HI_FREQ_TRACK
RV6
100k
+8V_REF
R16
100k
CENTER_FREQ
R17
100k
CV_SUM
CV_NODE
LINK_OUT_CV
C2
10nF
SW1
SW_SPDT_MSM
SYNC
HARD_SYNC
SOFT_SYNC
U1E
TL074
C6
100nF
C7
100nF
RV8
100k
PULSE_WIDTH
R21
240k
R24
100k
U?A
TL072
R?
47k
R?
20k
RV?
50k
PWM_IN
D?
1N4734A
PWMIN
RV9
100k
2PWM
R22
100k
R?
10k
U?B
TL072
R?
10k
LINK_OUT_PW
With PWMIN=0, PULSE_WIDTH ±12 V becomes ∓5 V at op amp output.
With PULSE_WIDTH=0, PWM_IN ±5 V becomes ∓5 V at op amp output.
Either way LINK_OUT_PW becomes ±5 V.
With trimmer set for 33k, PWM_IN becomes 5 to 0 V.
Adjust trimmer to get correct upper limit.
Zener clamps to 5.6 to 0 V.
Based mainly on Kassutronics VCO 3340
CVs and voltage reference based on LMNC 1222
Rich Holmes / Analog Output
Sheet: /
File: 3340vco.sch
Title: 3340 VCO
Size: USLetter
Date: 2020-07-19
Rev:
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1
Id: 1/3

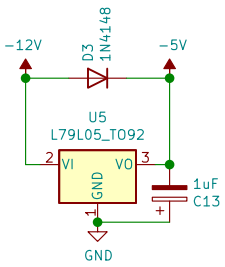












Based mainly on Kassutronics VCO 3340
CVs and voltage reference based on LMNC 1222
Rich Holmes / Analog Output

Sheet: /Panel components and power/
File: jackspower.sch

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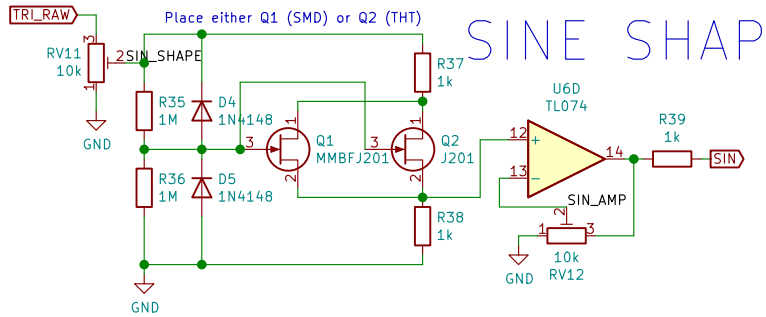
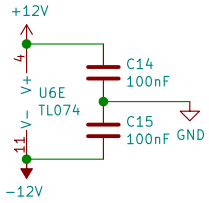
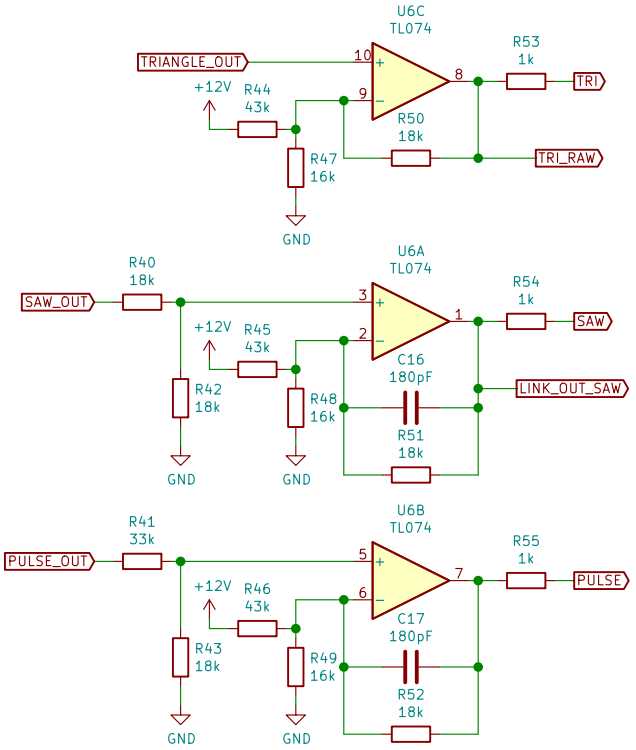


SINE SHAPING



OUTPUT CONDITIONING



Kassutronics used 100k feedback resistors and correspondingly large values for voltage divider resistors. AS3340 datasheet calls for a 51k pulldown on pin 4, and I don't see any reason to user larger resistances than that, so I reduced the values by a factor ~ (51k/(180k+100k)). Then stabilization caps were increased more to make 1/(2πRC) ~ 50kHz.

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Sheet: /Sine shaping and outputs/
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