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DOC.NR.	STATUS	DESCRIPTION
26.000.00.01.01	FINAL	Overall - Block diagram
26.000.00.01.02	FINAL	Overall - Schematic
26.000.00.01.03	FINAL	31.5 Hz & 63 Hz module - Schematic
26.000.00.01.04	FINAL	125 Hz & 250 Hz module - Schematic
26.000.00.01.05	FINAL	500 Hz & 1 kHz module - Schematic
26.000.00.01.06	FINAL	2 kHz & 4 kHz module - Schematic
26.000.00.01.07	FINAL	8 kHz & 16 kHz module - Schematic
26.001.00.01.01	FINAL	Front panel - Schematic (DFM)
26.002.00.01.01	FINAL	Front pcb - Schematic (DFM)
26.003.00.01.01	FINAL	Main pcb - Schematic (DFM)
26.004.00.01.01	FINAL	Shielding pcb - Schematic (DFM)
26.005.00.01.01	FINAL	Strut pcb - Schematic (DFM)
26.006.00.01.01	VOID	31.5 Hz & 63 Hz module (PTH) - Schematic (DFM)
26.006.01.01.01	VOID	31.5 Hz & 63 Hz module (PTH+SMT) - Schematic (DFM)
26.006.02.01.01	FINAL	31.5 Hz & 63 Hz module (PTH+SMT) - Schematic (DFM)
26.007.01.01.01	FINAL	125 Hz & 250 Hz module (PTH+SMT) - Schematic (DFM)
26.008.01.01.01	FINAL	500 Hz & 1 kHz module (PTH+SMT) - Schematic (DFM)
26.009.01.01.01	TBD	2 kHz & 4 kHz module (PTH+SMT) - Schematic (DFM)
26.010.01.01.01	TBD	8 kHz & 16 kHz module (PTH+SMT) - Schematic (DFM)
26.999.00.01.01	VOID	CA3140M breakout pcb (PTH+SMT) - Schematic (DFM)
26.999.01.01.01	FINAL	CA3140M breakout pcb (PTH+SMT) - Schematic (DFM)

OCTAVE_FILTER

TITLE Front Page

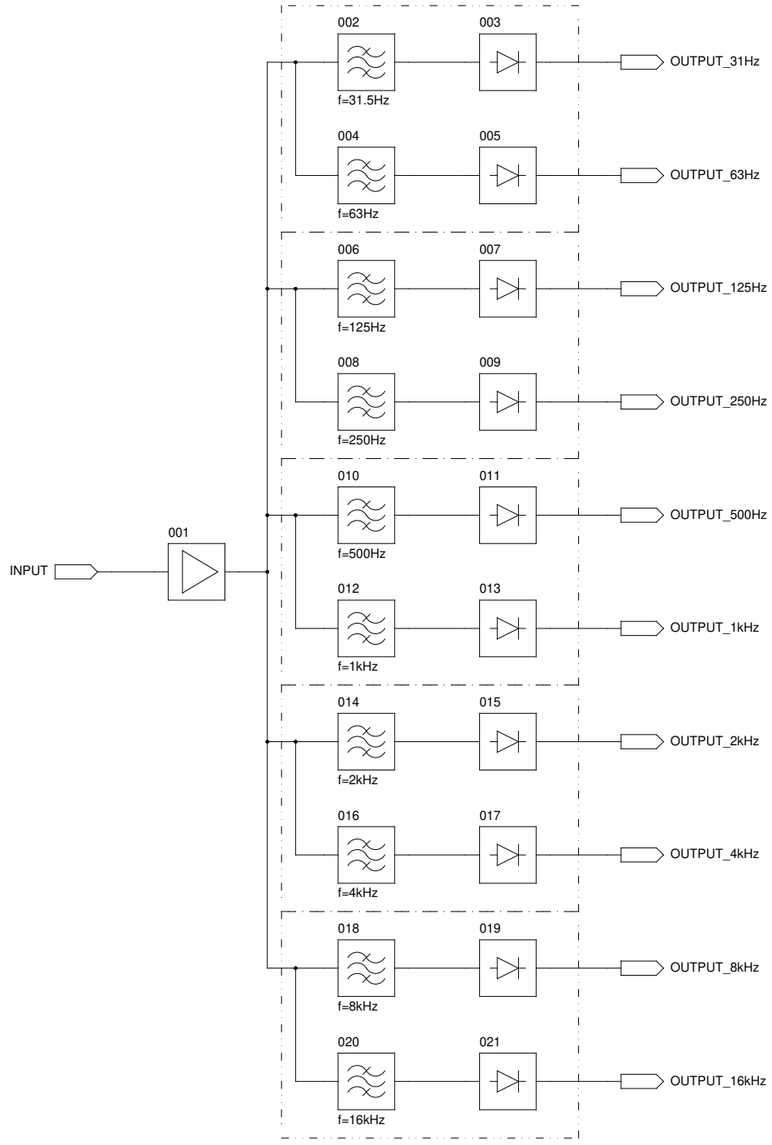
FILE: 26.000.00.00.01.sch

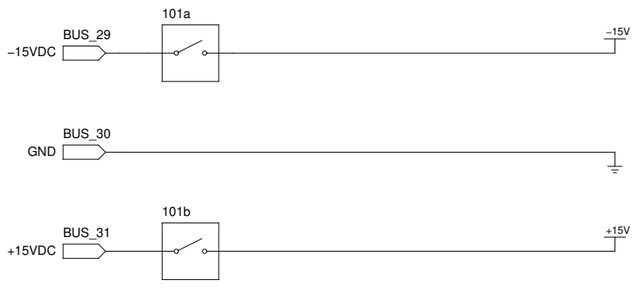
PAGE 01 OF 01

REVISION: 20240523

DRAWN BY: Bert Timmerman

A3

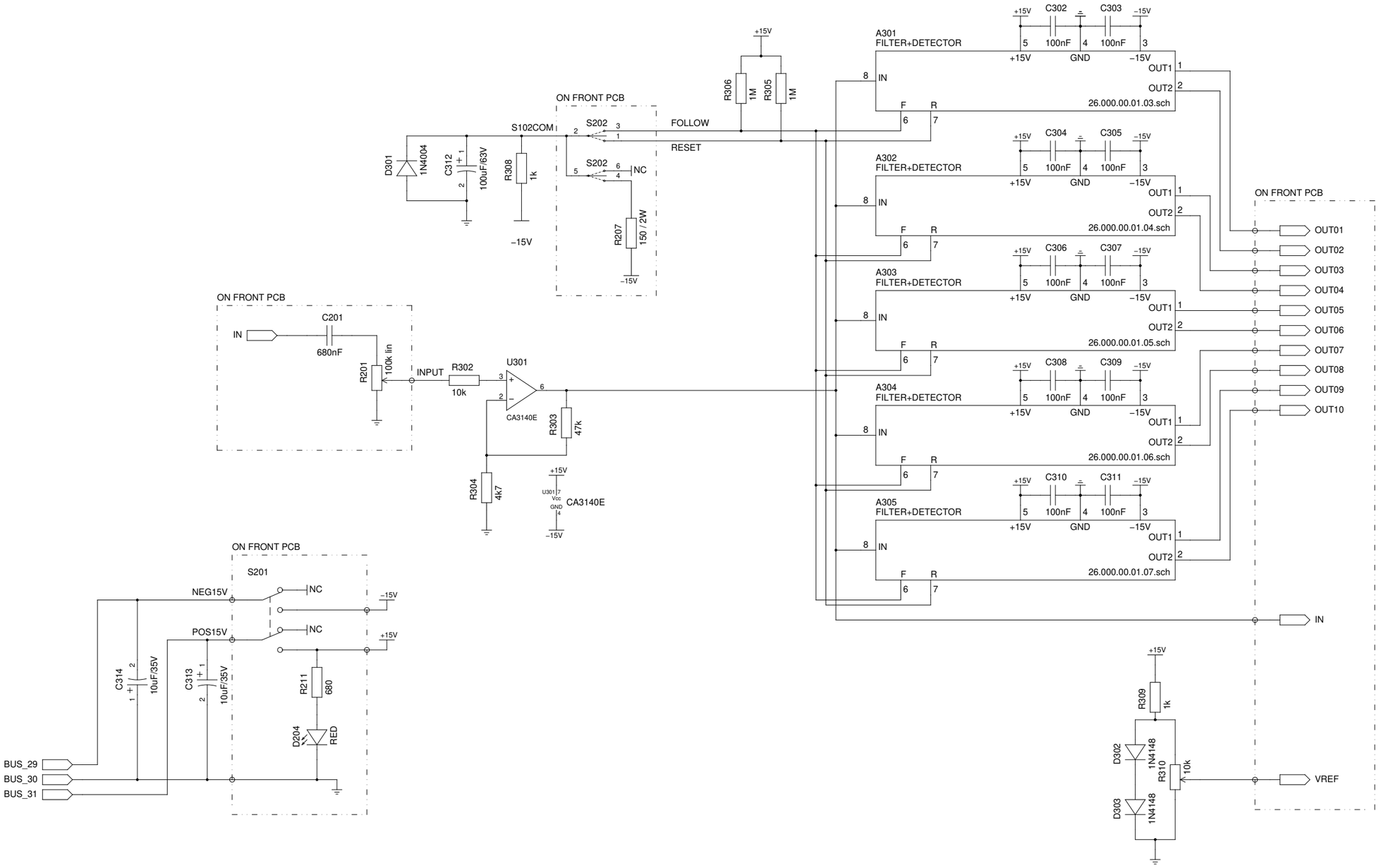




CC BY SA

TITLE	OCTAVE_FILTER Overall Block diagram		
FILE:	26.000.00.01.01.sch	REVISION:	20240522
PAGE	01 OF 07	DRAWN BY:	Bert Timmerman

A1



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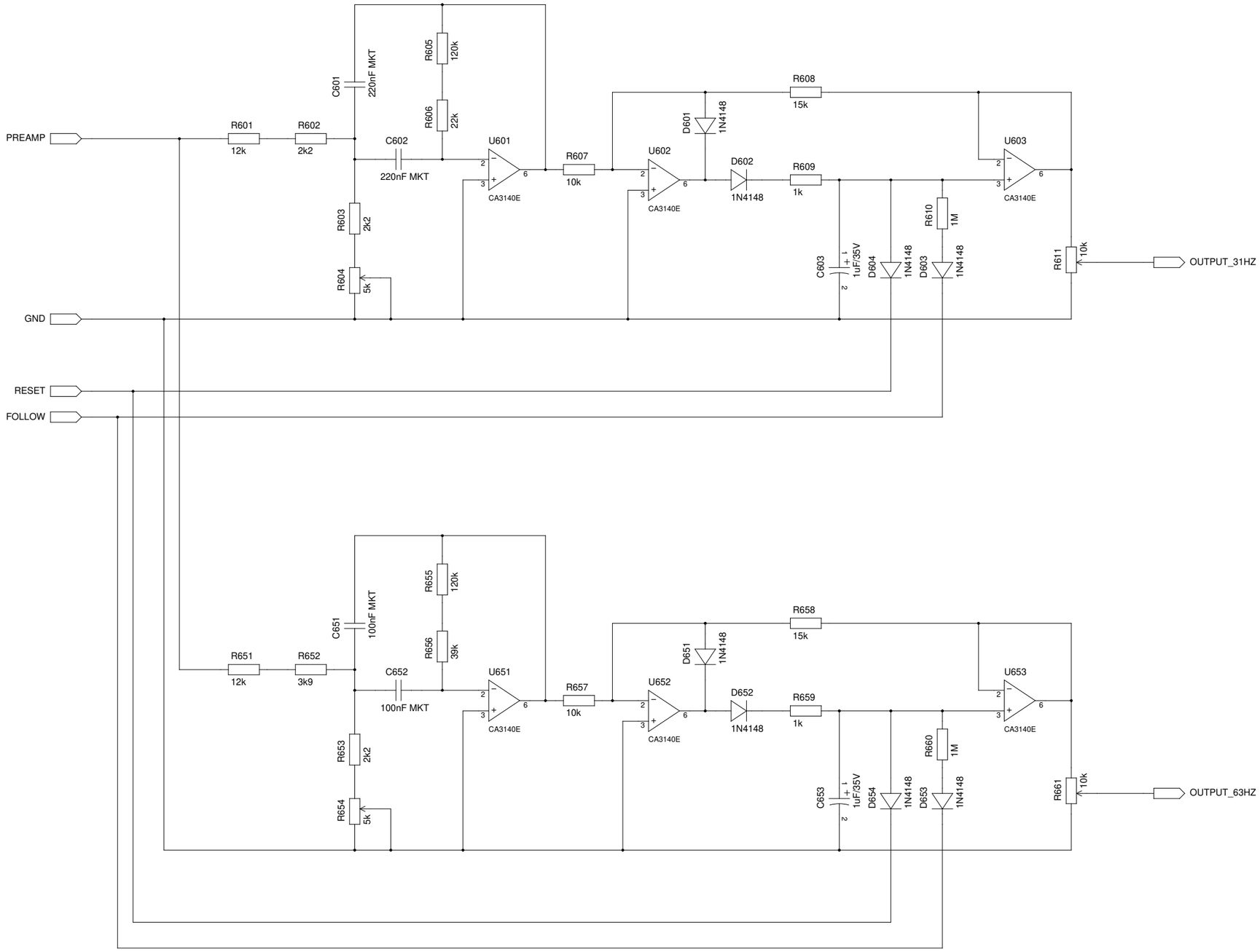
TITLE	OCTAVE_FILTER Overall Schematic		
FILE:	26.000.00.01.02.sch	REVISION:	20240522
PAGE	02 OF 07	DRAWN BY:	Bert Timmerman

A1



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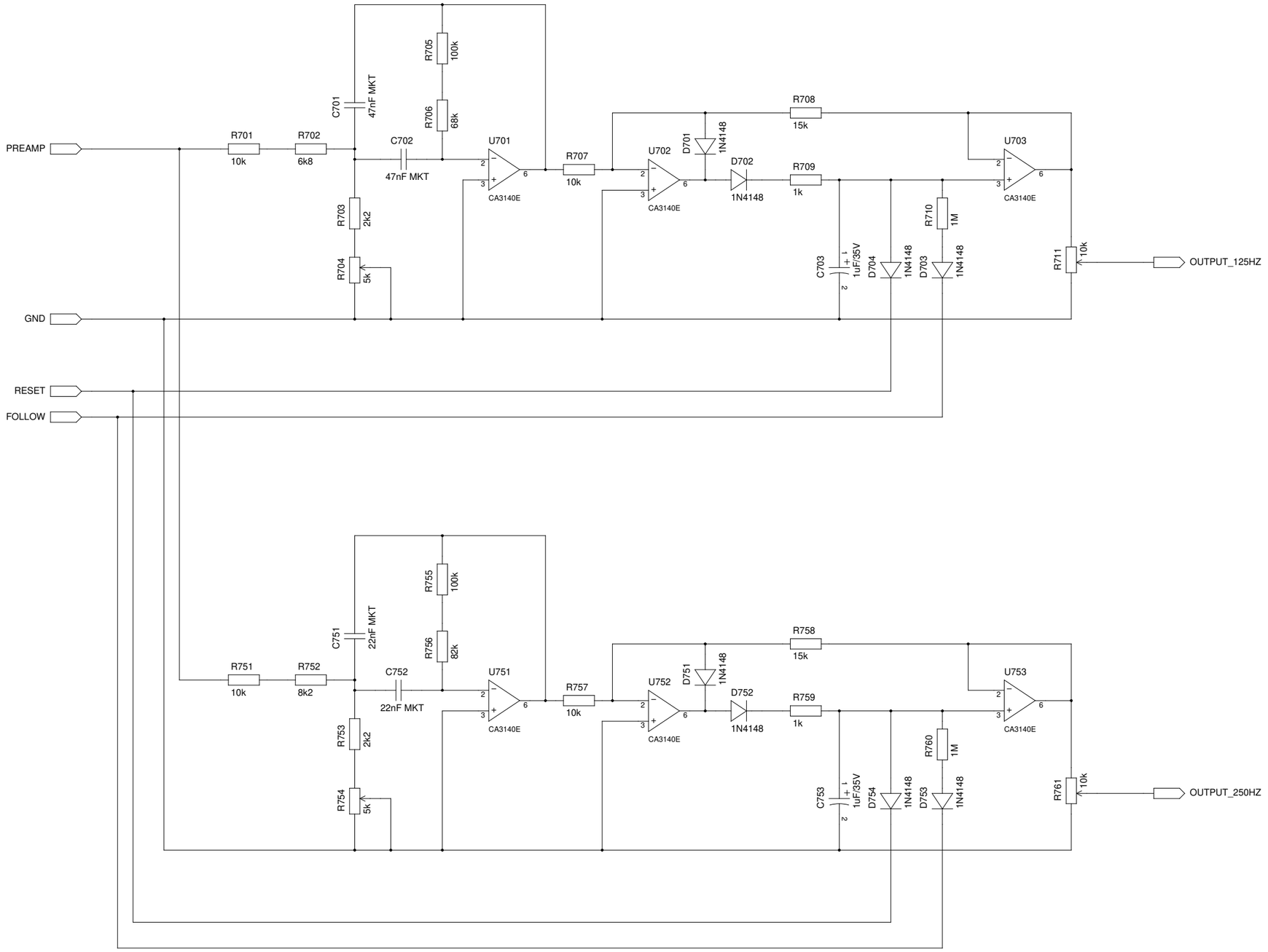
	OCTAVE_FILTER 31.5 Hz & 63 Hz module		
TITLE	Schematic		
FILE:	26.000.00.01.03.sch	REVISION:	20240522
PAGE	03 OF 07	DRAWN BY:	Bert Timmerman

A1



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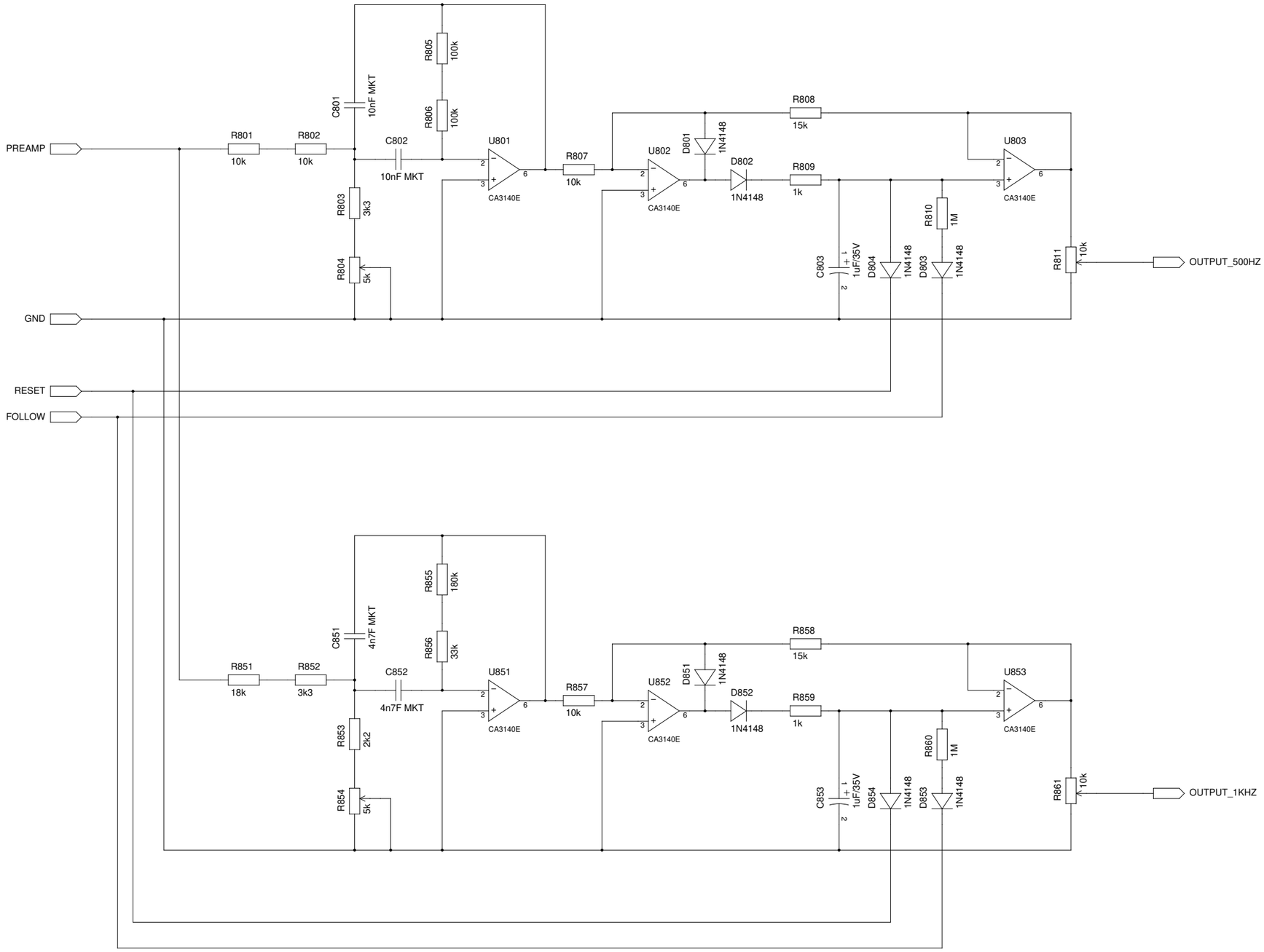
	OCTAVE_FILTER 125 Hz & 250 Hz module		
TITLE	Schematic		
FILE:	26.000.00.01.04.sch	REVISION:	20240522
PAGE	04 OF 07	DRAWN BY:	Bert Timmerman

A1



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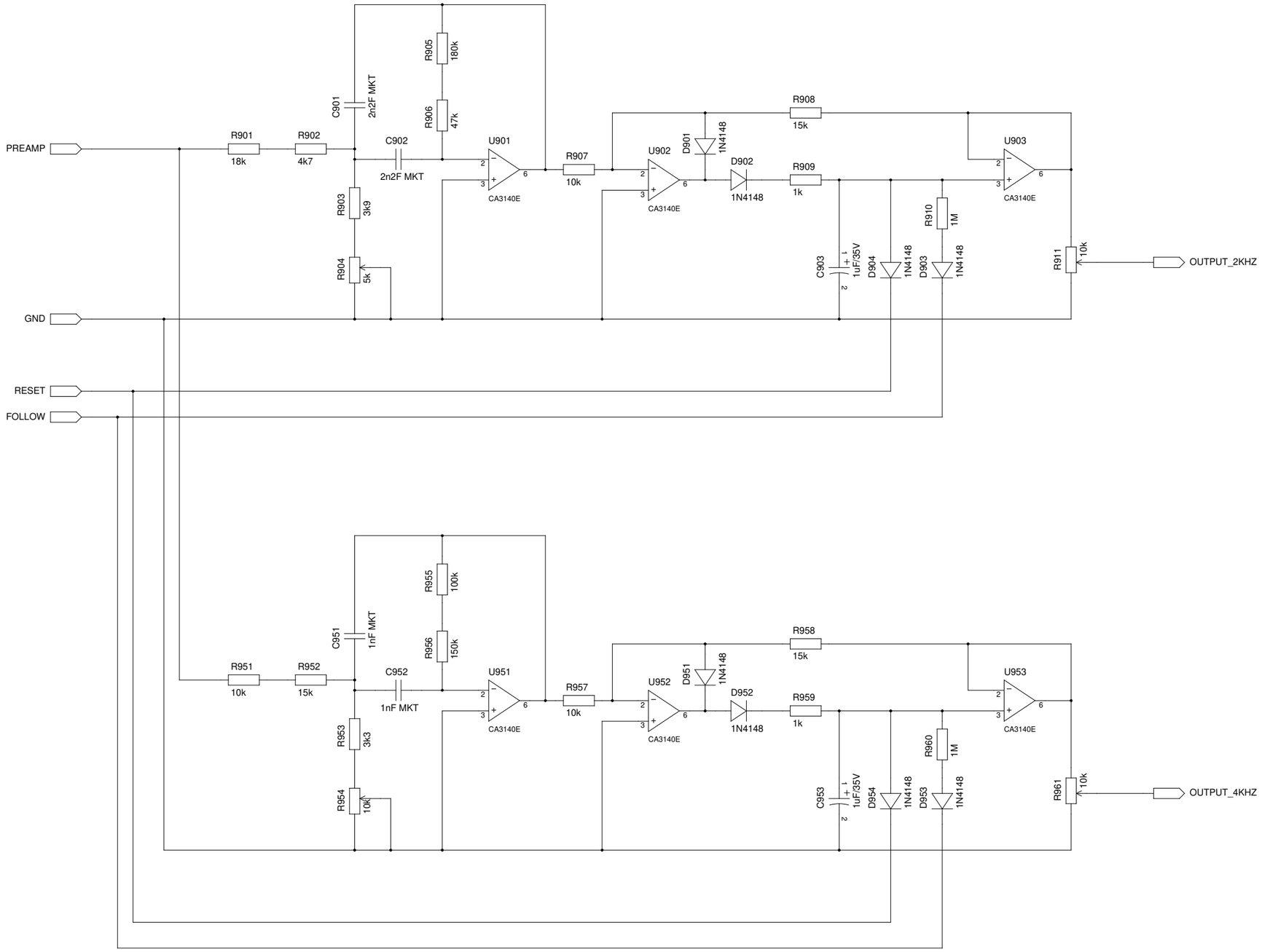
TITLE	OCTAVE_FILTER 500 Hz & 1 kHz module Schematic		
FILE:	26.000.00.01.05.sch	REVISION:	20240522
PAGE	05 OF 07	DRAWN BY:	Bert Timmerman

A1



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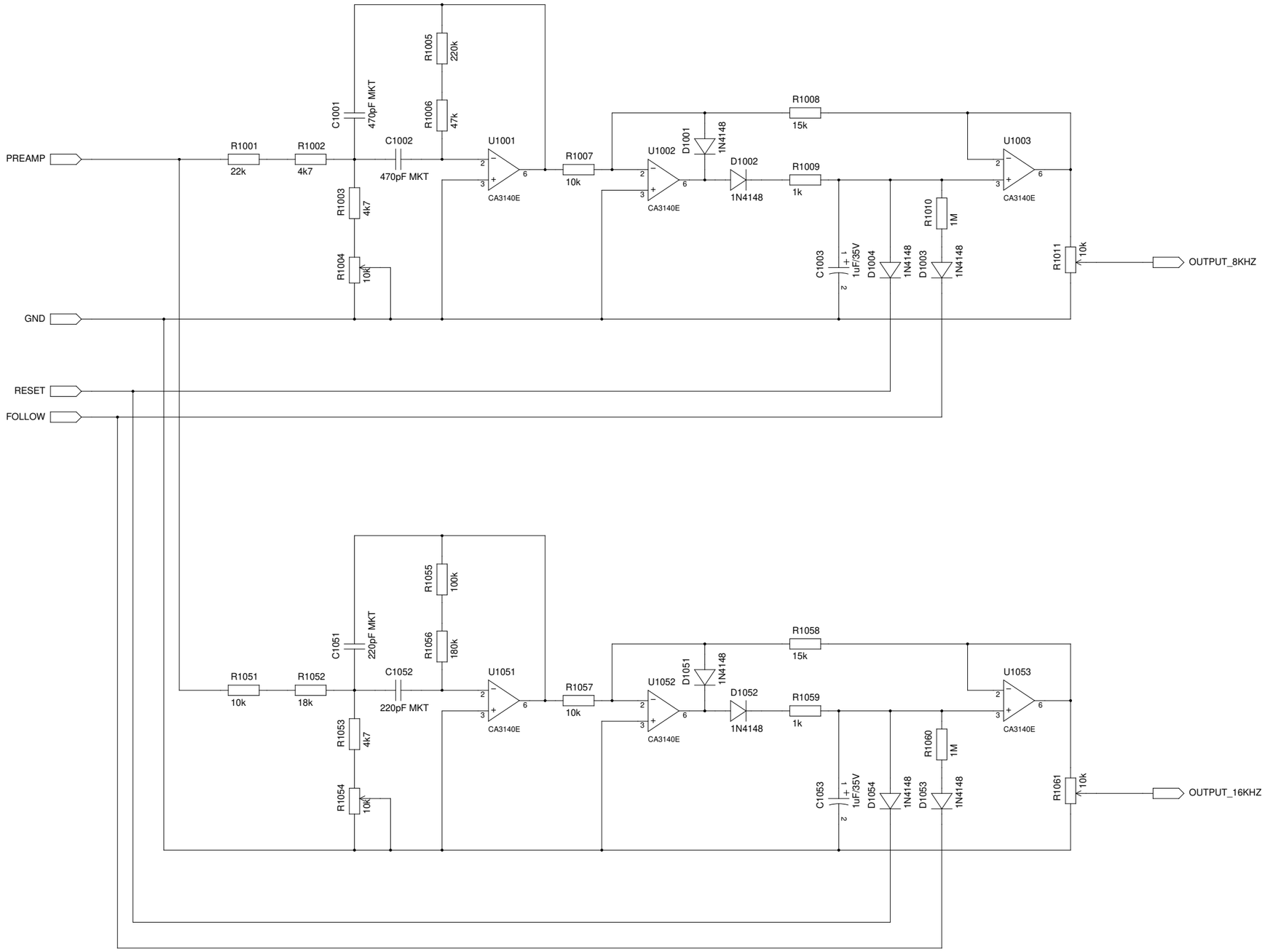
TITLE	OCTAVE_FILTER 2 kHz & 4 kHz module Schematic		
FILE:	26.000.00.01.06.sch	REVISION:	20240522
PAGE	06 OF 07	DRAWN BY:	Bert Timmerman

A1



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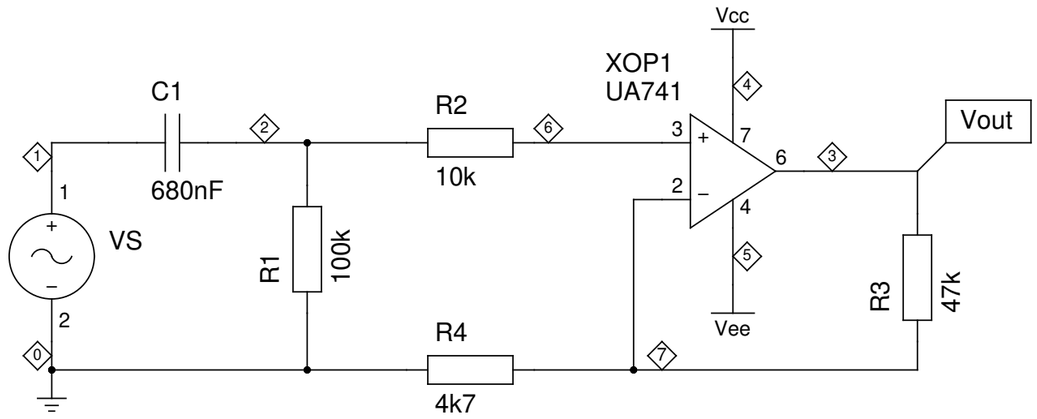
TITLE	OCTAVE_FILTER 8 kHz & 16 kHz module Schematic		
FILE:	26.000.00.01.07.sch	REVISION:	20240522
PAGE	07 OF 07	DRAWN BY:	Bert Timmerman

A1

```
.TITLE OCTAVE FILTER – MAIN BOARD – INPUT STAGE – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.01   10Meg

.END
```



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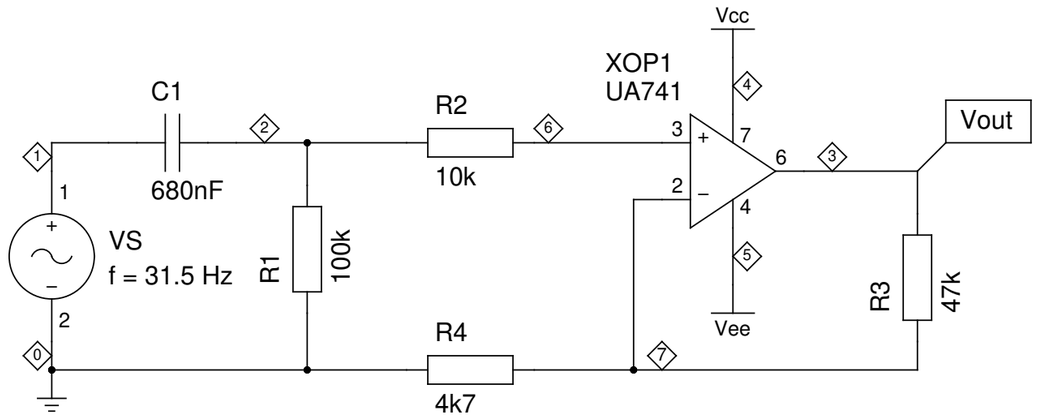
TITLE	Octave Filter – Main board – Input stage (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.01.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – MAIN BOARD – INPUT STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 31.5)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001 TRACE ALL

.END
```



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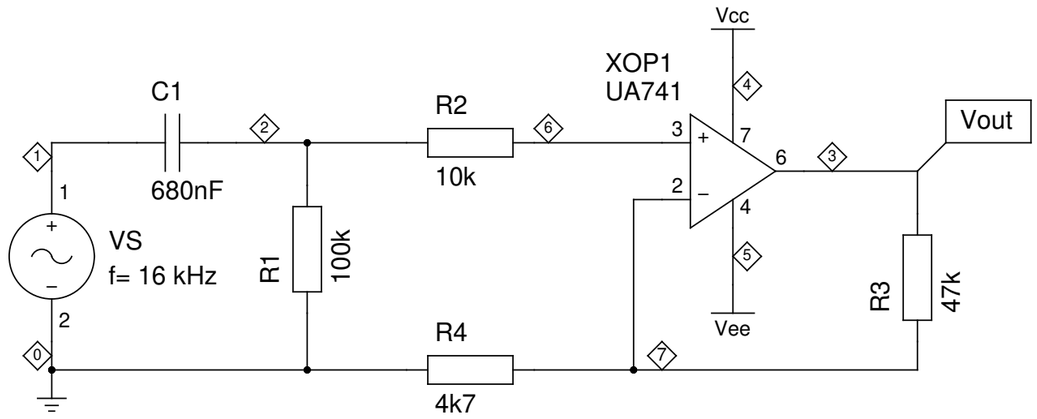
TITLE	Octave Filter – Main board – Input stage (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.02.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – MAIN BOARD – INPUT STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1 16k)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.01  0.000001 TRACE ALL

.END
```



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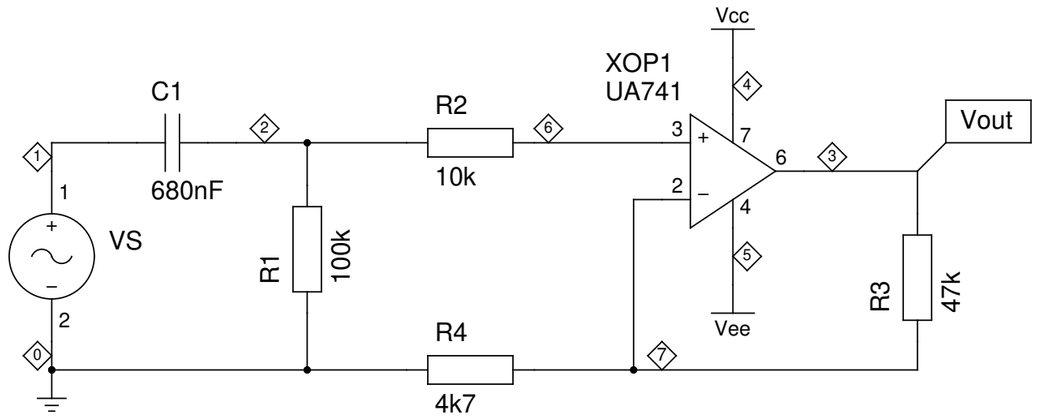
TITLE	Octave Filter – Main board – Input stage (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.03.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – MAIN BOARD – INPUT STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 1k)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.02  0.000001 TRACE ALL

.END
```



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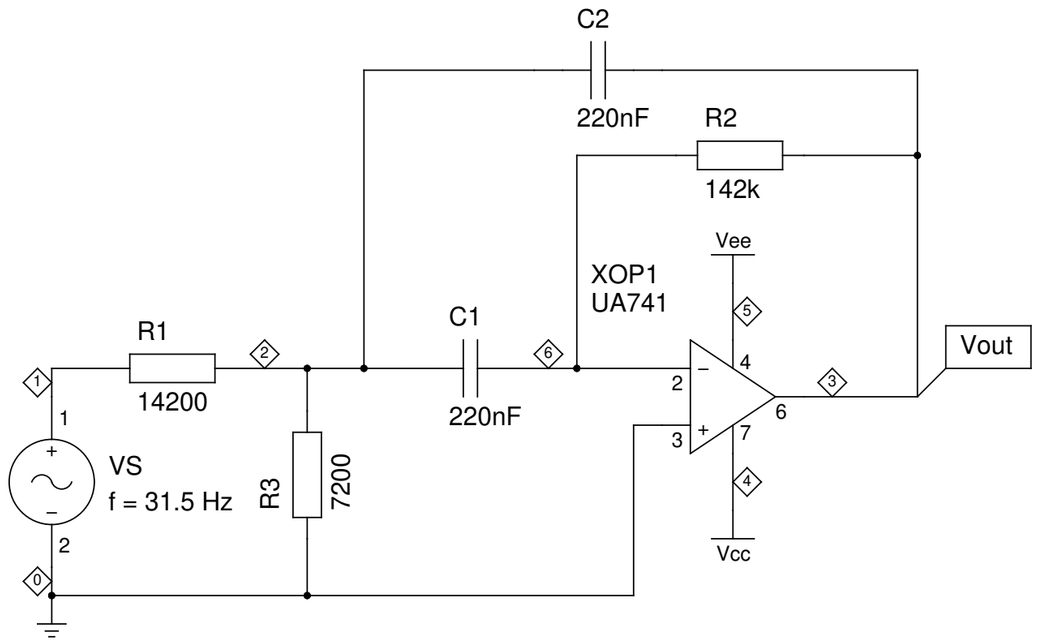
TITLE	Octave Filter – Main board – Input stage (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.04.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – BPF STAGE – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



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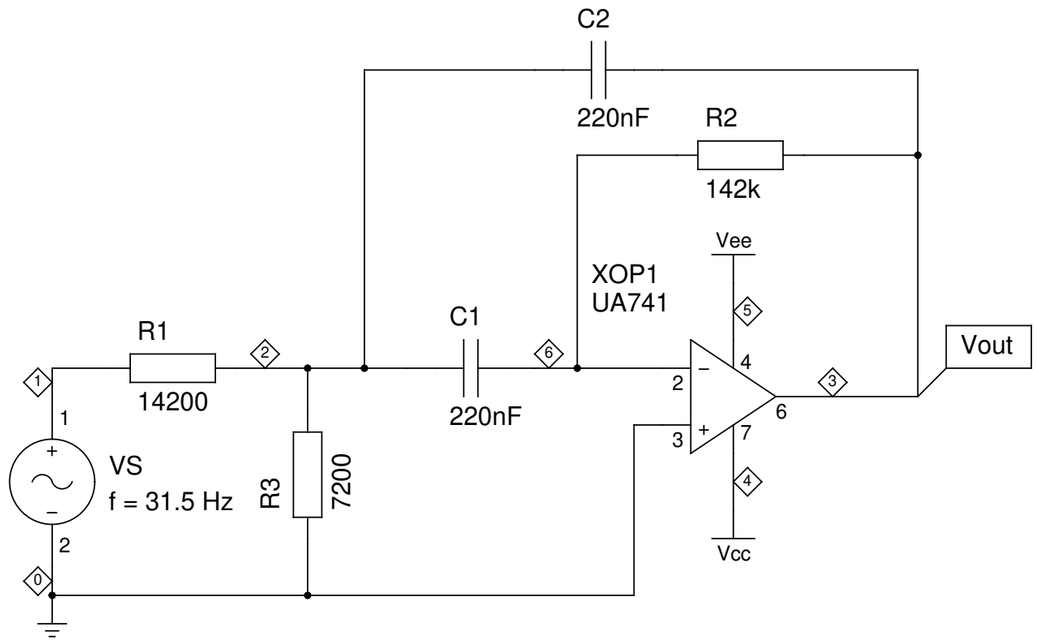
TITLE	Octave Filter – First stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.05.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.2  0.00001 TRACE ALL

.END
```



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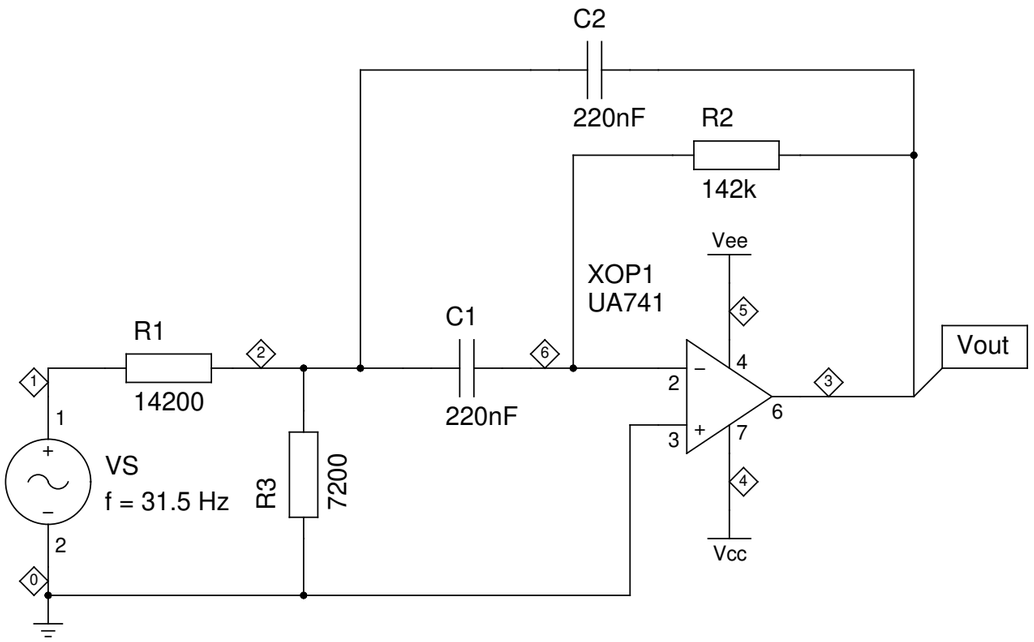
TITLE	Octave Filter – First stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.06.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.2  0.00001 TRACE ALL

.END
```



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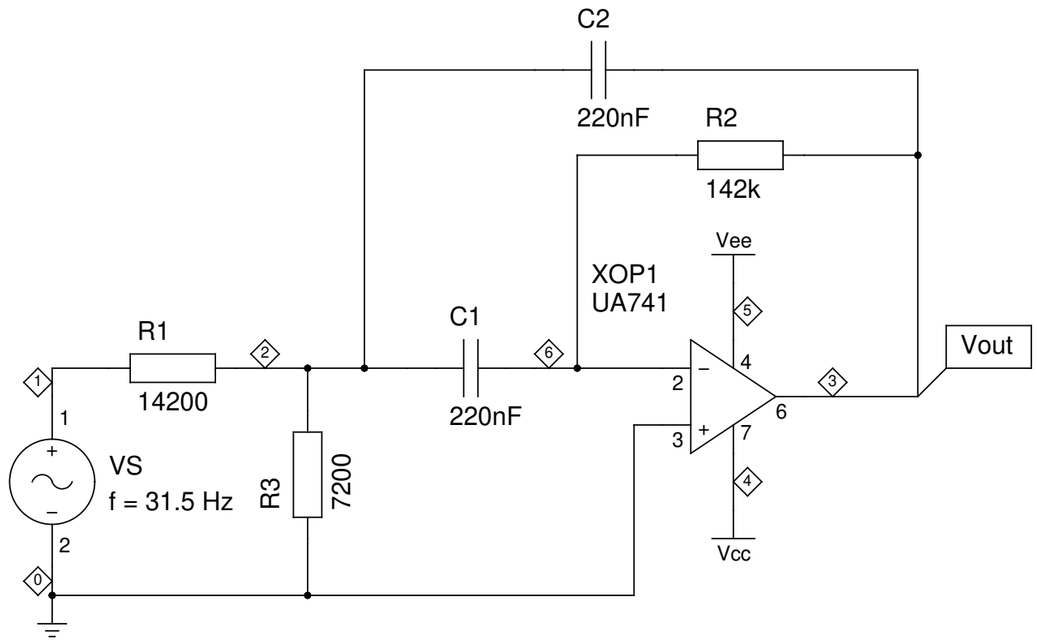
TITLE	Octave Filter – First stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.07.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.2  0.00001 TRACE ALL

.END
```



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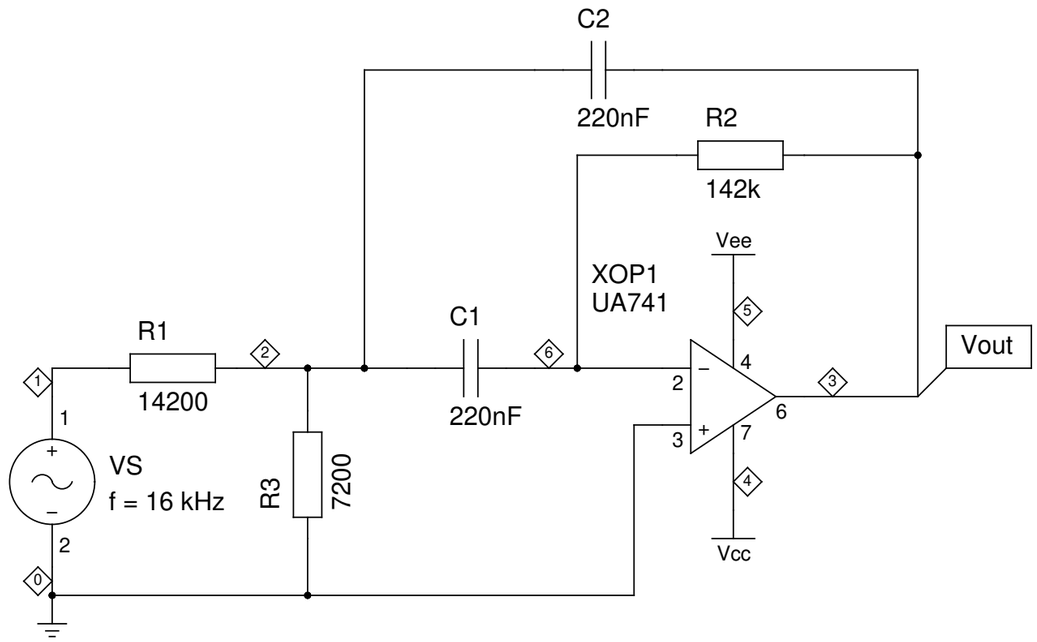
FILE:	26.000.00.02.08.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.01 0.00001 TRACE ALL

.END
```



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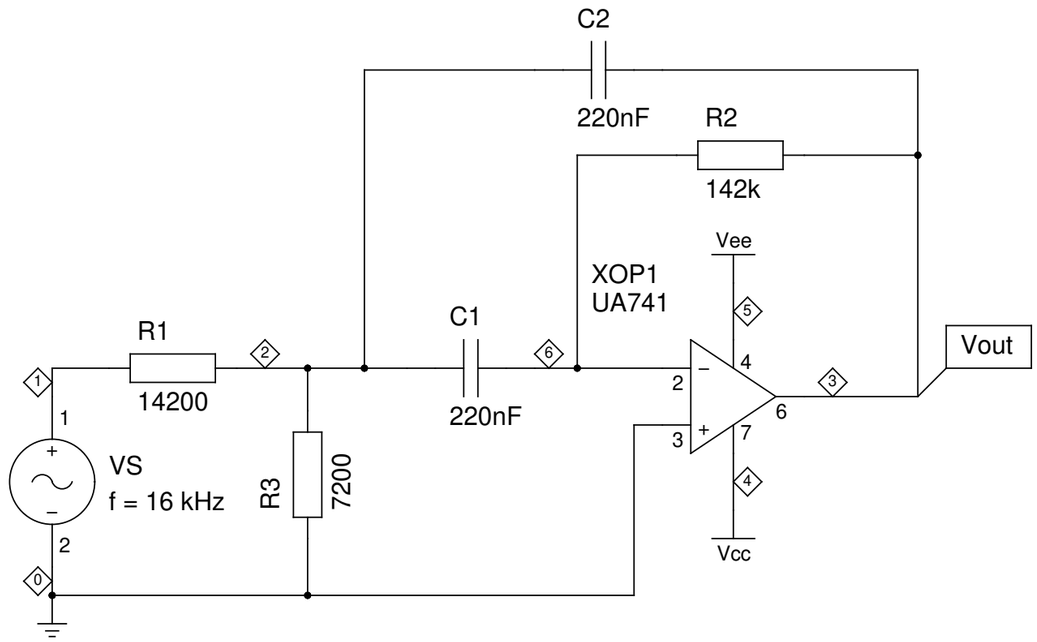
TITLE	Octave Filter – First stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.09.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
			A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.001  0.00001 TRACE ALL

.END
```



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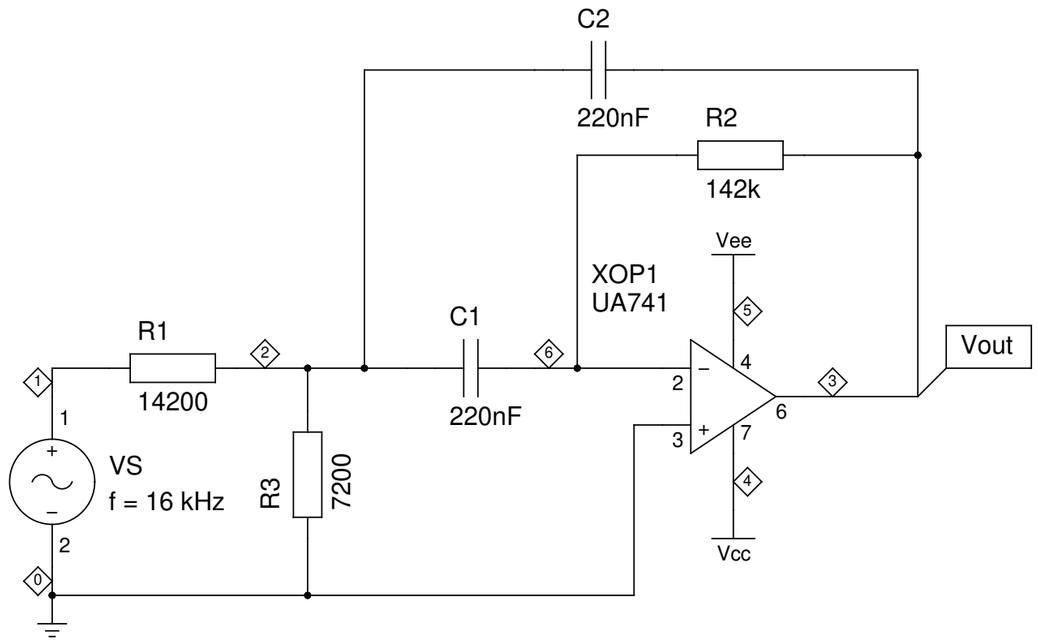
TITLE	Octave Filter – First stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.10.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.001  0.00001 TRACE ALL

.END
```



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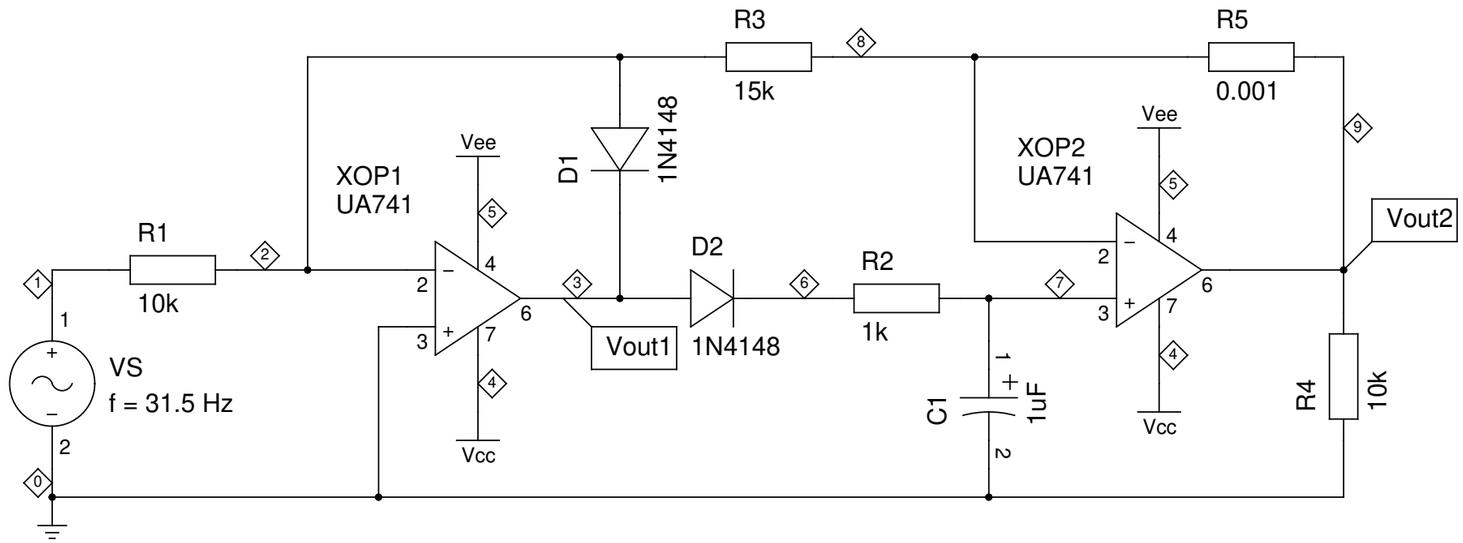
TITLE	Octave Filter – First stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.11.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – DETECTOR STAGE – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 31.5)

C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



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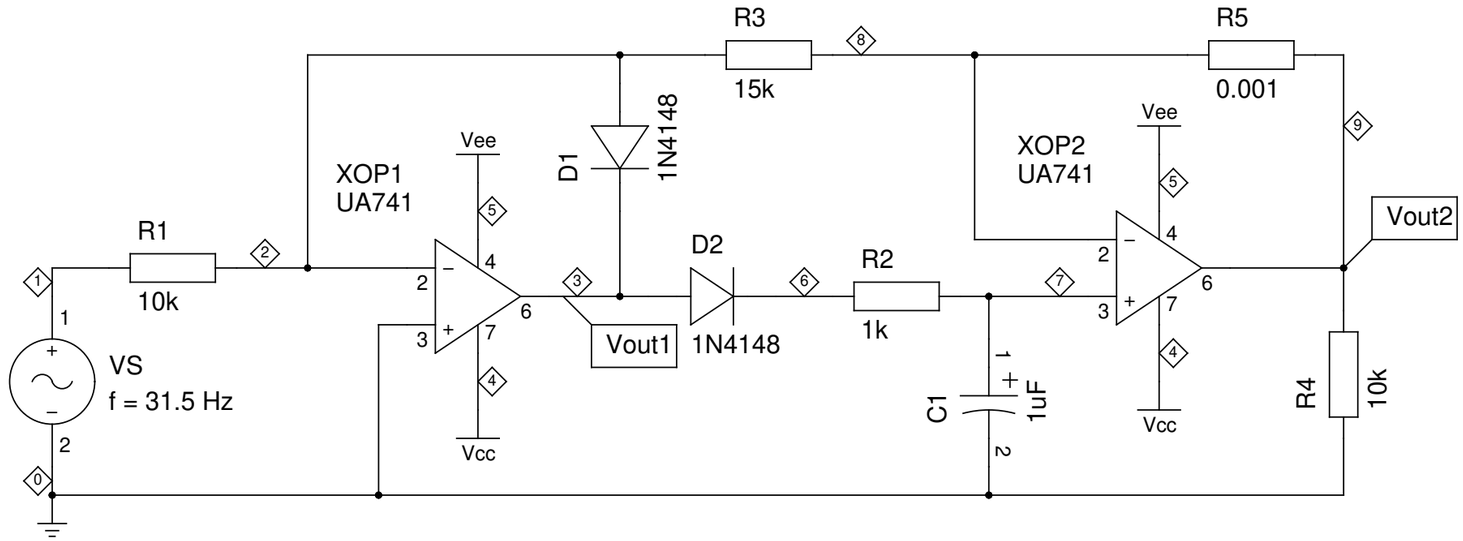
	Octave Filter – Second stage of the 31.5 Hz module (for simulation) schematic
TITLE	OCTAVE_FILTER
FILE:	26.000.00.02.12.sch
PAGE	01 OF 01
REVISION:	20220422
DRAWN BY:	Bert Timmerman
	A3

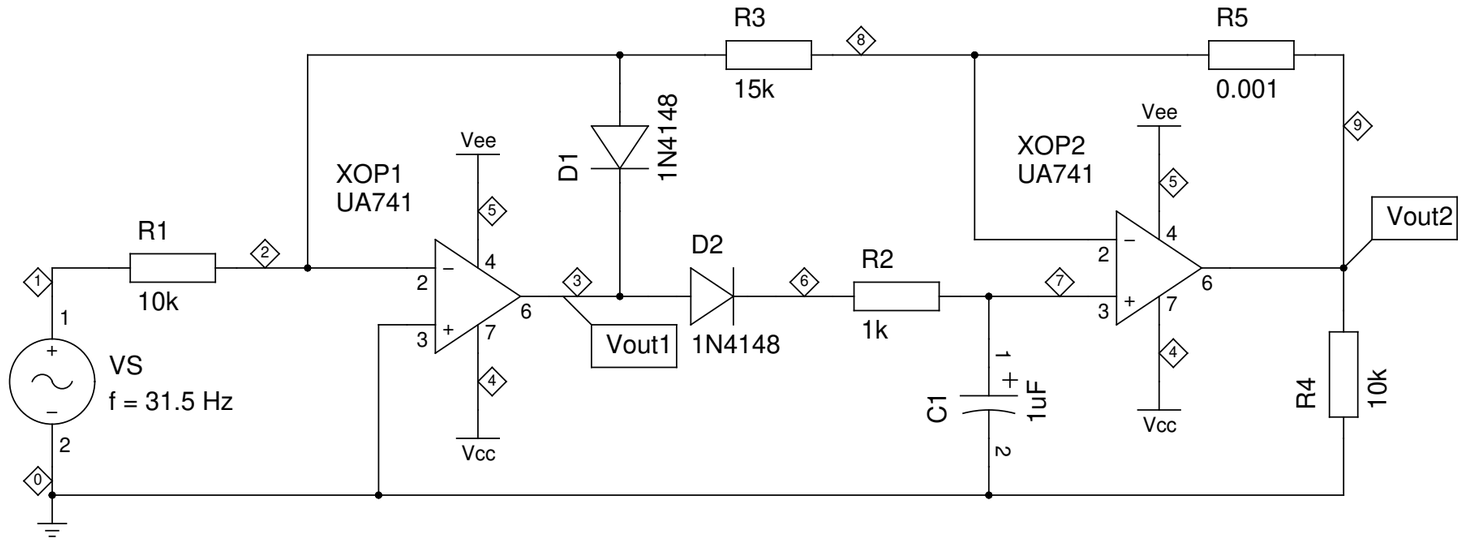
```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – DETECTOR STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14

VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001 TRACE ALL

.END
```



CC BY SA

TITLE	Octave Filter – Second stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.13.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
			A3

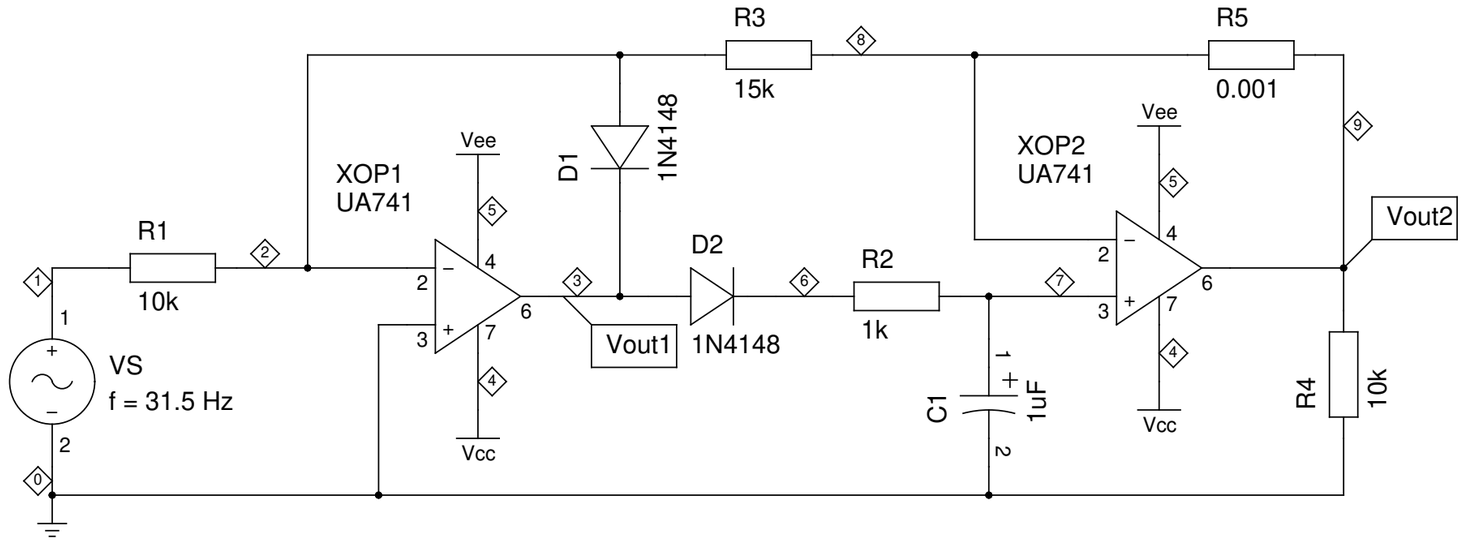
```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – DETECTOR STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14

VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001 TRACE ALL

.END
```



CC BY SA

TITLE	Octave Filter – Second stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.14.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
			A3

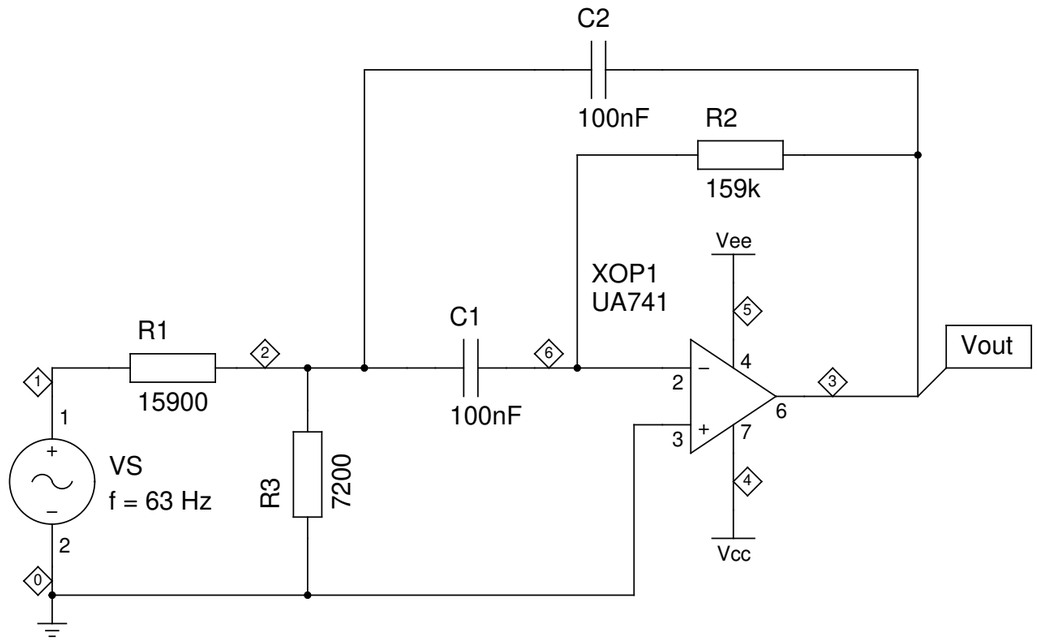
```
.TITLE OCTAVE FILTER – 31.5 HZ SECTION – DETECTOR STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14

VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001 TRACE ALL

.END
```



CC BY SA

TITLE	Octave Filter – Second stage of the 31.5 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.15.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
			A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – BPF STAGE – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```

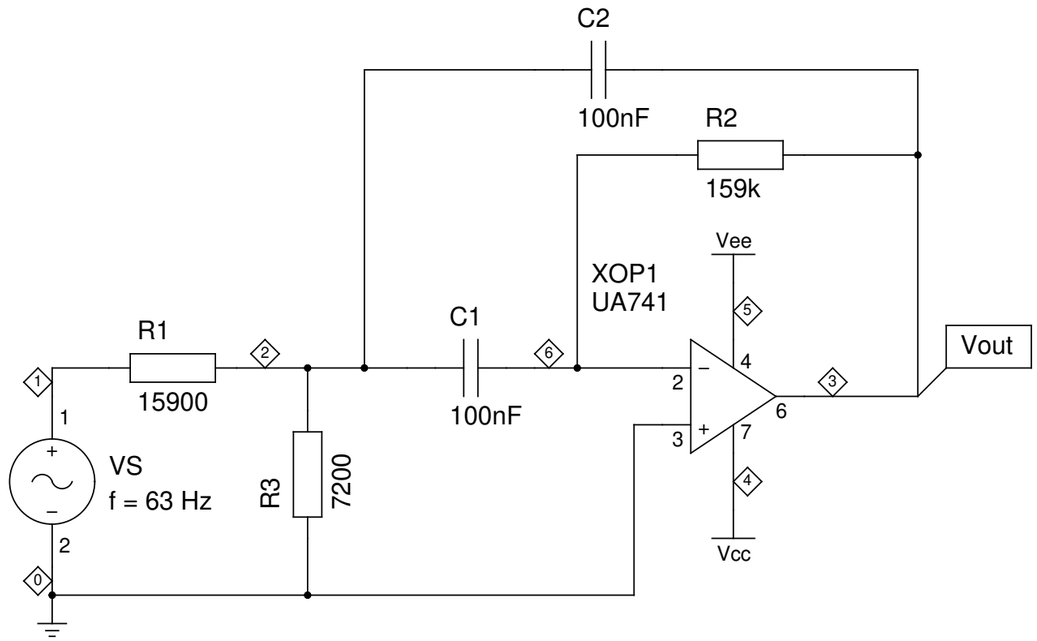


CC BY SA

TITLE	Octave Filter – First stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.16.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 63)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.2  0.0001 TRACE ALL

.END
```

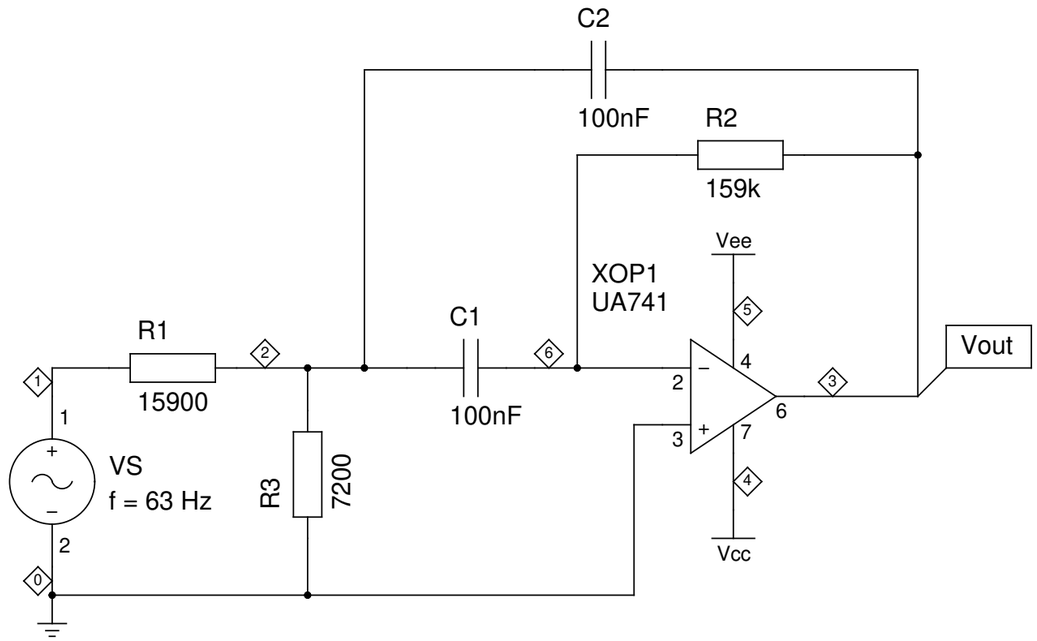


CC BY SA

TITLE	Octave Filter – First stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.17.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 63)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.2  0.0001 TRACE ALL

.END
```

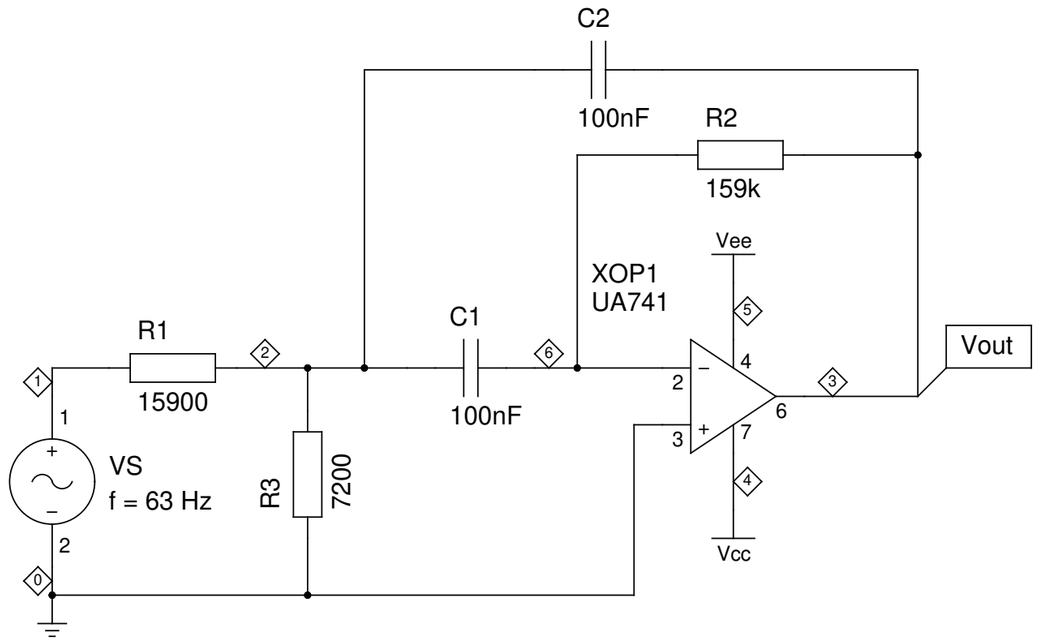


CC BY SA

TITLE	Octave Filter – First stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.18.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 63)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.2  0.0001 TRACE ALL

.END
```

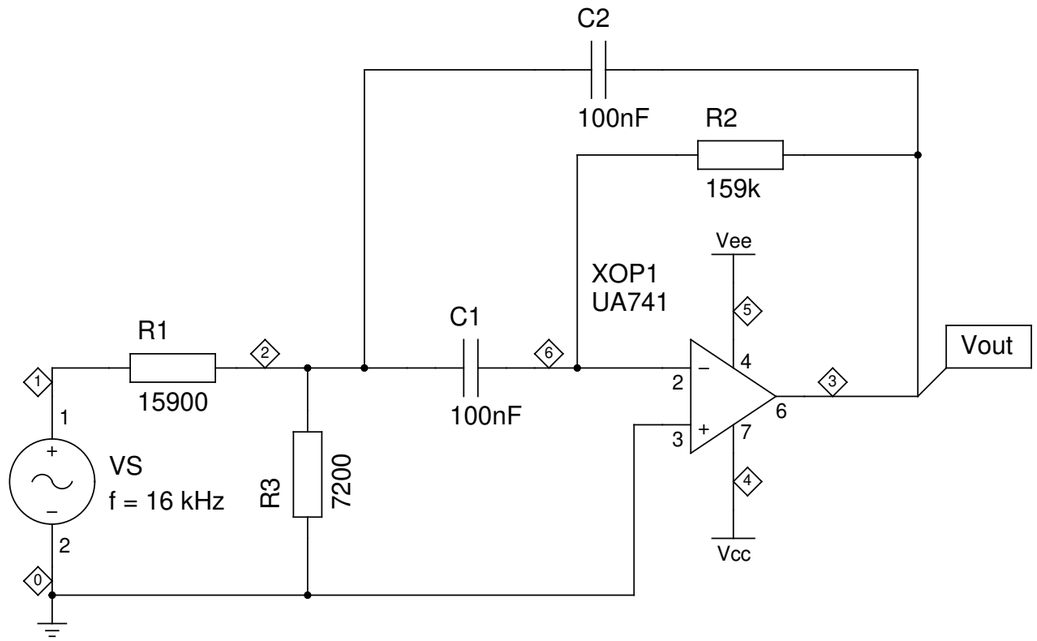


CC BY SA

TITLE	Octave Filter – First stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.19.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 16k)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.01  0.00001 TRACE ALL

.END
```

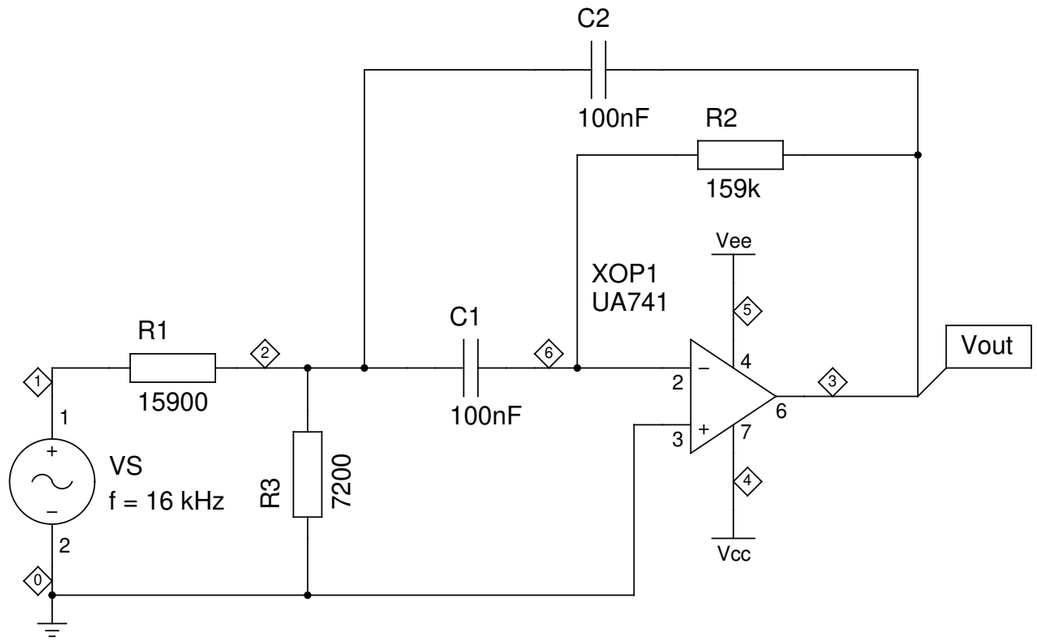


CC BY SA

TITLE	Octave Filter – First stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.20.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 16k)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.01  0.0001 TRACE ALL

.END
```

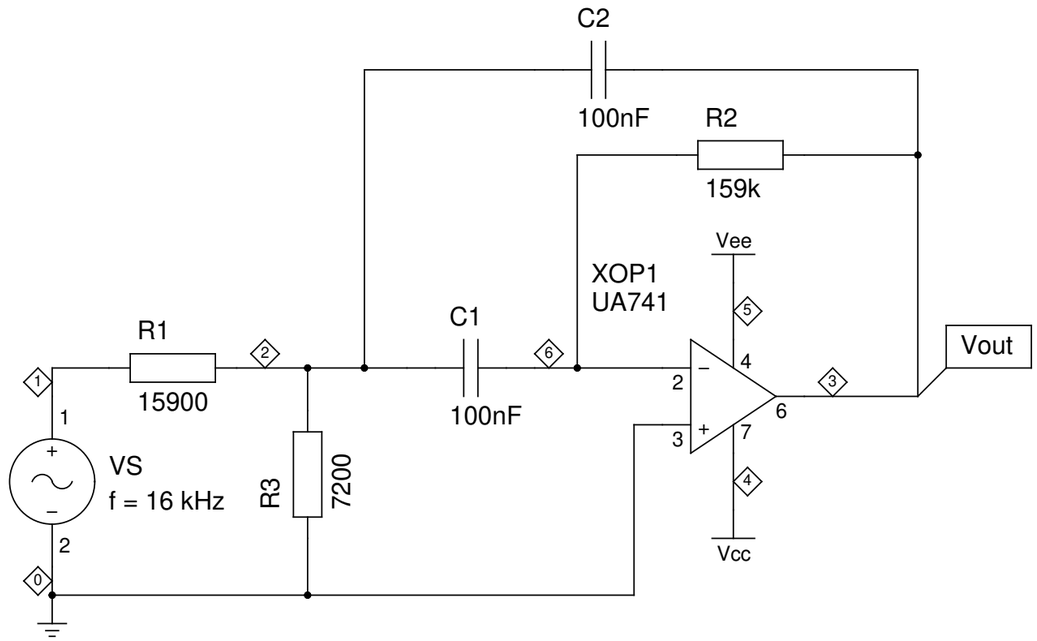


CC BY SA

TITLE	Octave Filter – First stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.21.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 0.141 16k)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.01  0.0001 TRACE ALL

.END
```

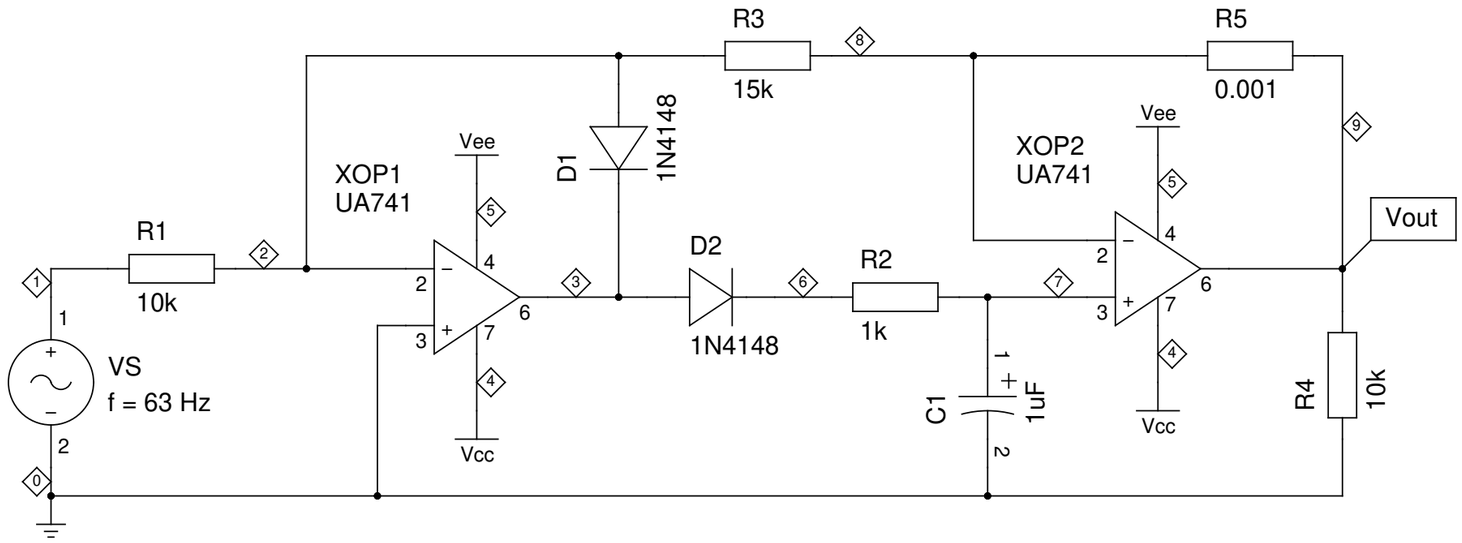


CC BY SA

TITLE	Octave Filter – First stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.22.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – DETECTOR STAGE – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```

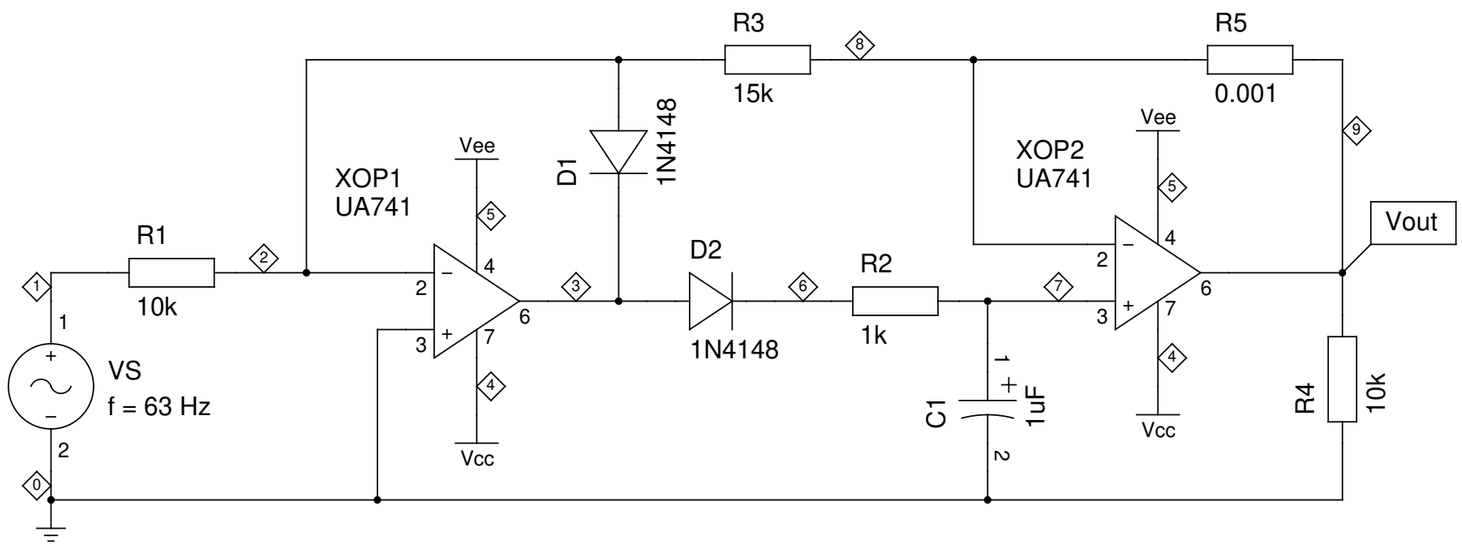


CC BY SA

TITLE	Octave Filter – Second stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.23.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – DETECTOR STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001

.END
```

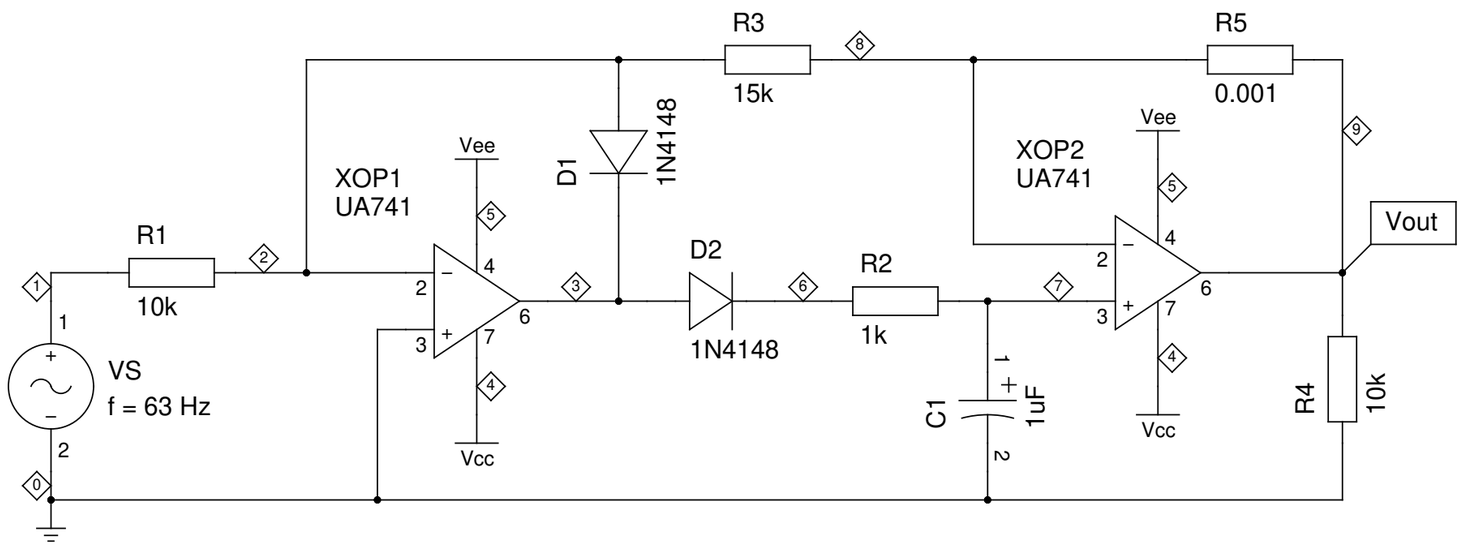


CC BY SA

TITLE	Octave Filter – Second stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.24.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 63 HZ SECTION – DETECTOR STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```

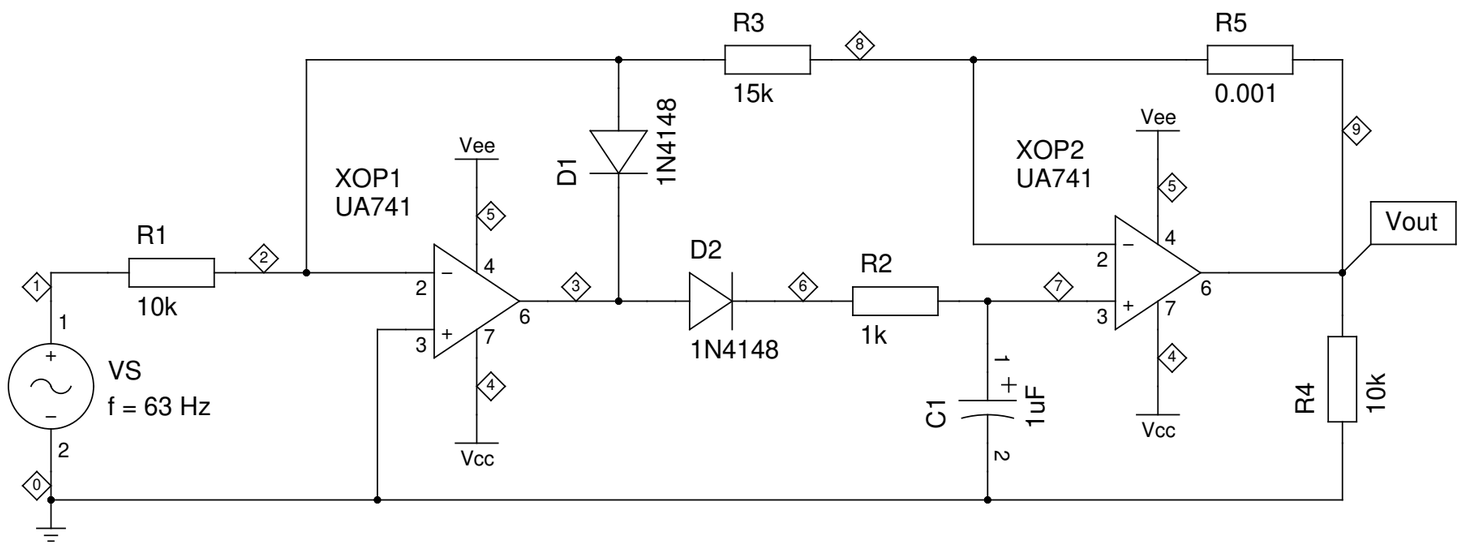


CC BY SA

TITLE	Octave Filter – Second stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.25.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

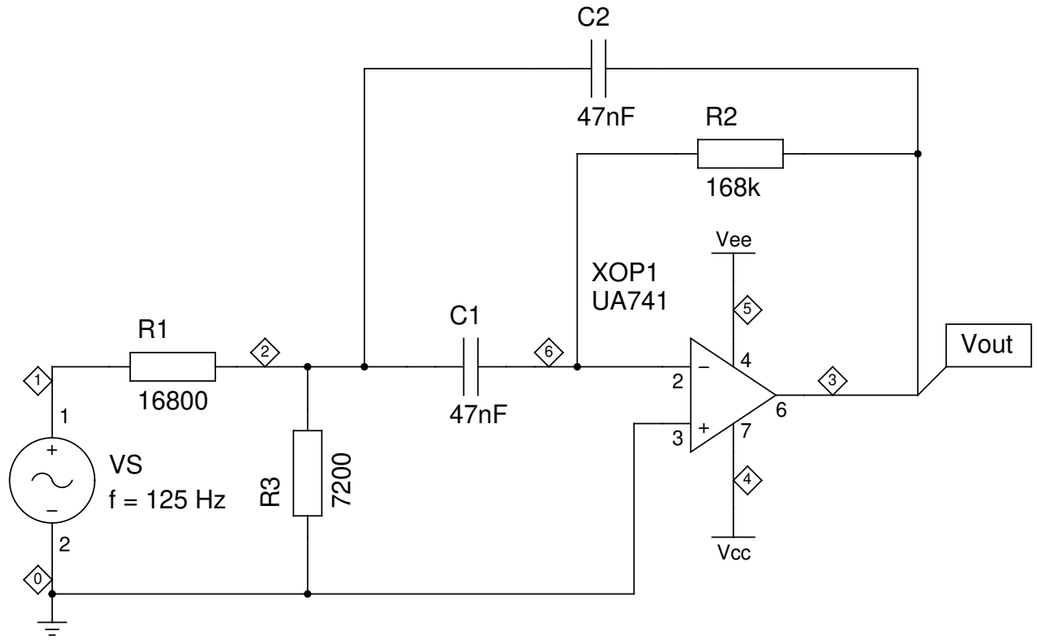
```
.TITLE OCTAVE FILTER – 63 HZ SECTION – DETECTOR STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



CC BY SA

TITLE	Octave Filter – Second stage of the 63 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE: 26.000.00.02.26.sch		REVISION: 20220422	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – 125 HZ MODULE – FIRST STAGE – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```

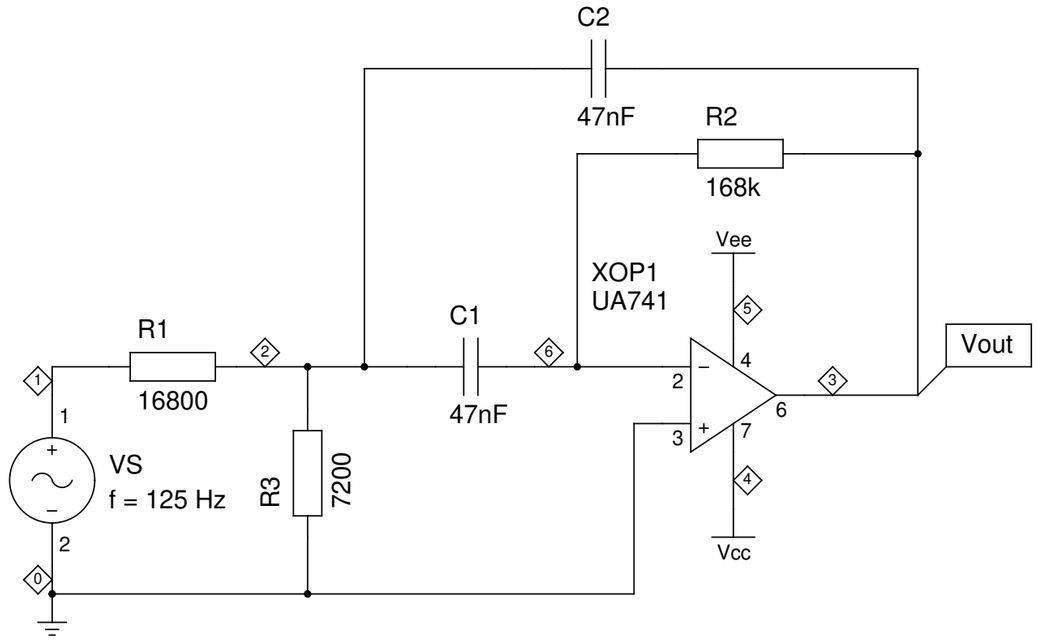


CC BY SA

TITLE	Octave Filter – First stage of the 125 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.27.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 125 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 125)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```

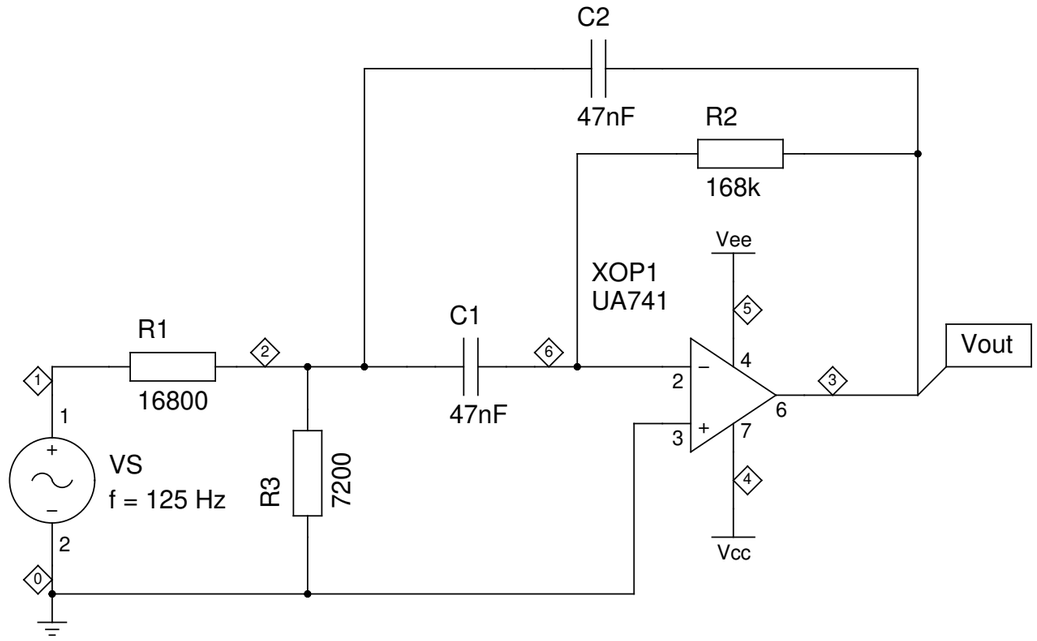


CC BY SA

TITLE	Octave Filter – First stage of the 125 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.28.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 125 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 125)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```

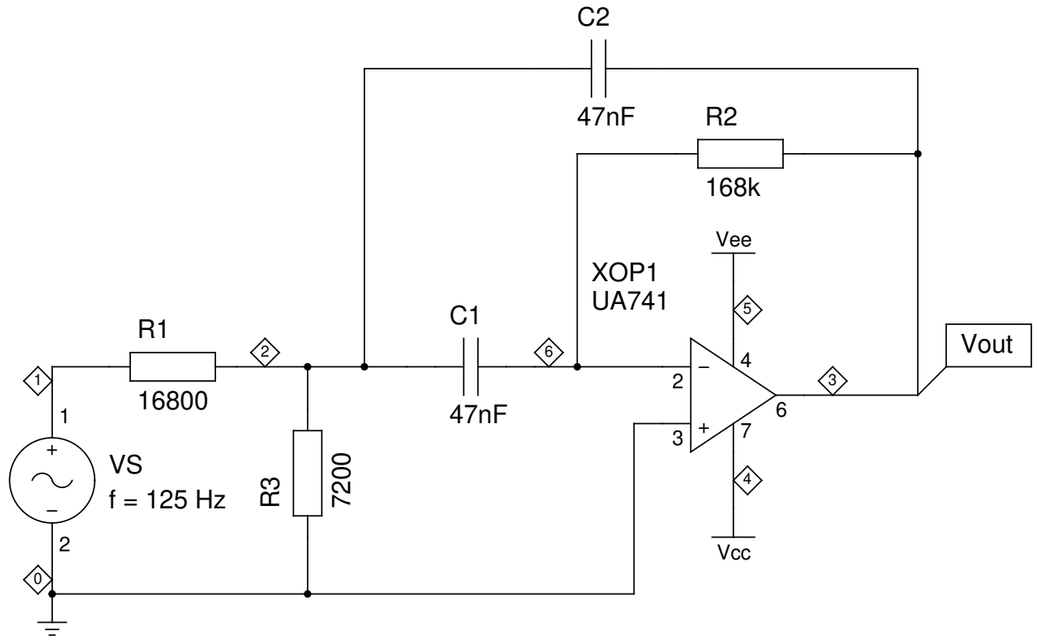


CC BY SA

TITLE	Octave Filter – First stage of the 125 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.29.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 125 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 125)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```

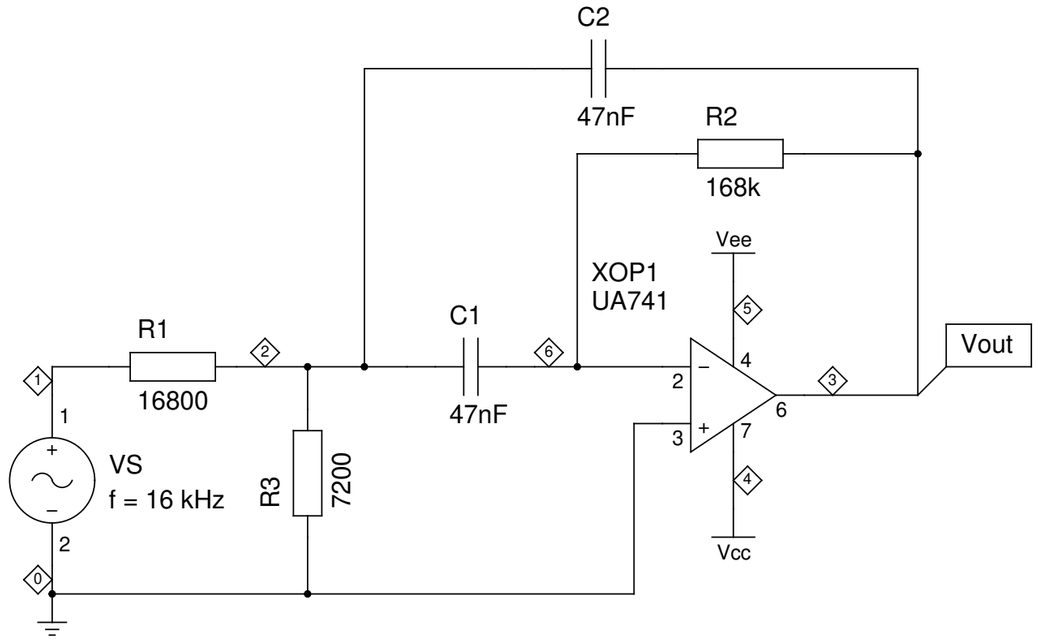


CC BY SA

TITLE	Octave Filter – First stage of the 125 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.30.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 125 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```

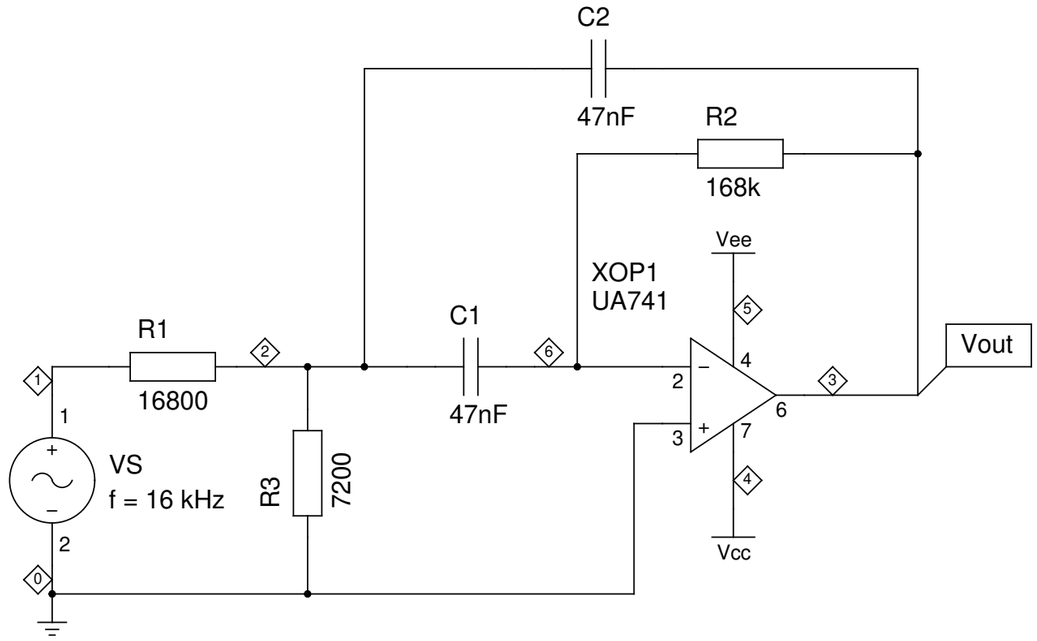


CC BY SA

TITLE	Octave Filter – First stage of the 125 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.31.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 125 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```

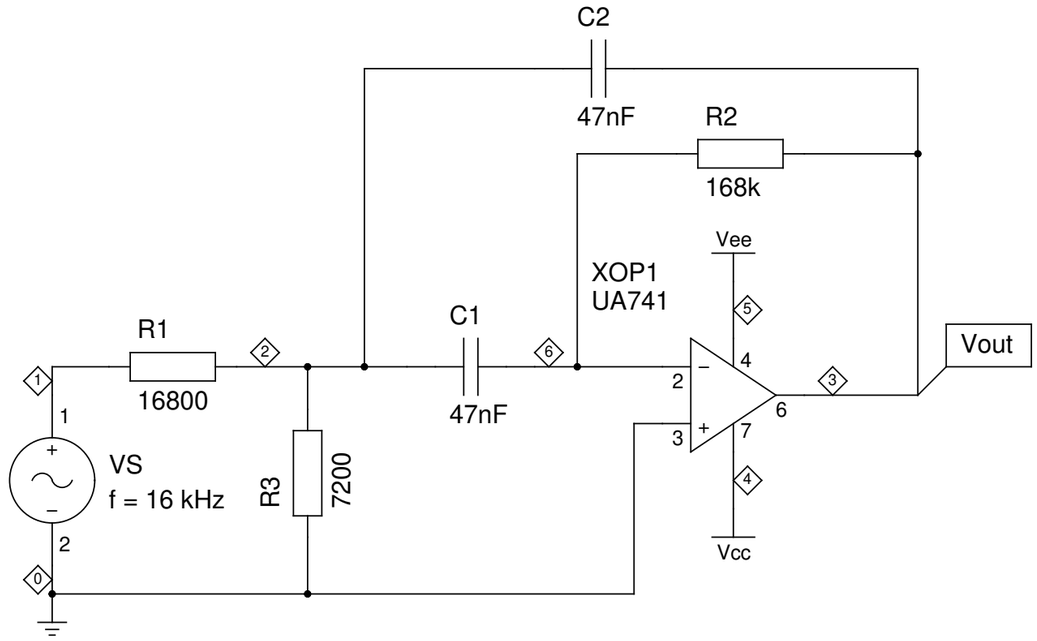


CC BY SA

TITLE	Octave Filter – First stage of the 125 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.32.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A3

```
.TITLE OCTAVE FILTER – 125 HZ SECTION – BPF STAGE – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```

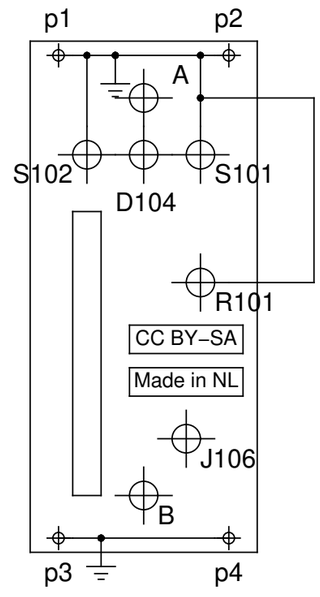


CC BY SA

TITLE	Octave Filter – First stage of the 125 Hz module (for simulation) schematic OCTAVE_FILTER		
FILE:	26.000.00.02.33.sch	REVISION:	20220422
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

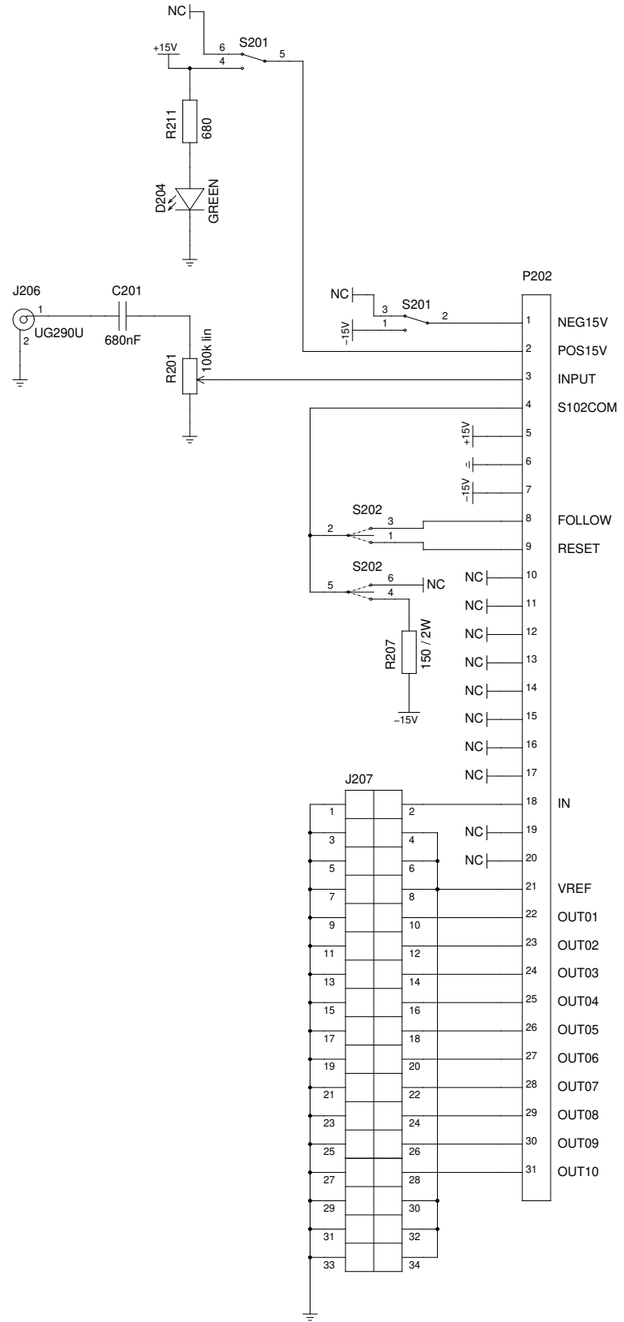
A3

Mounting holes:

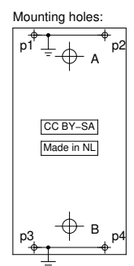


CC BY SA

TITLE	OCTAVE_FILTER Front panel Schematic (DFM)		
FILE: 26.001.00.01.01.sch		REVISION: 20240522	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

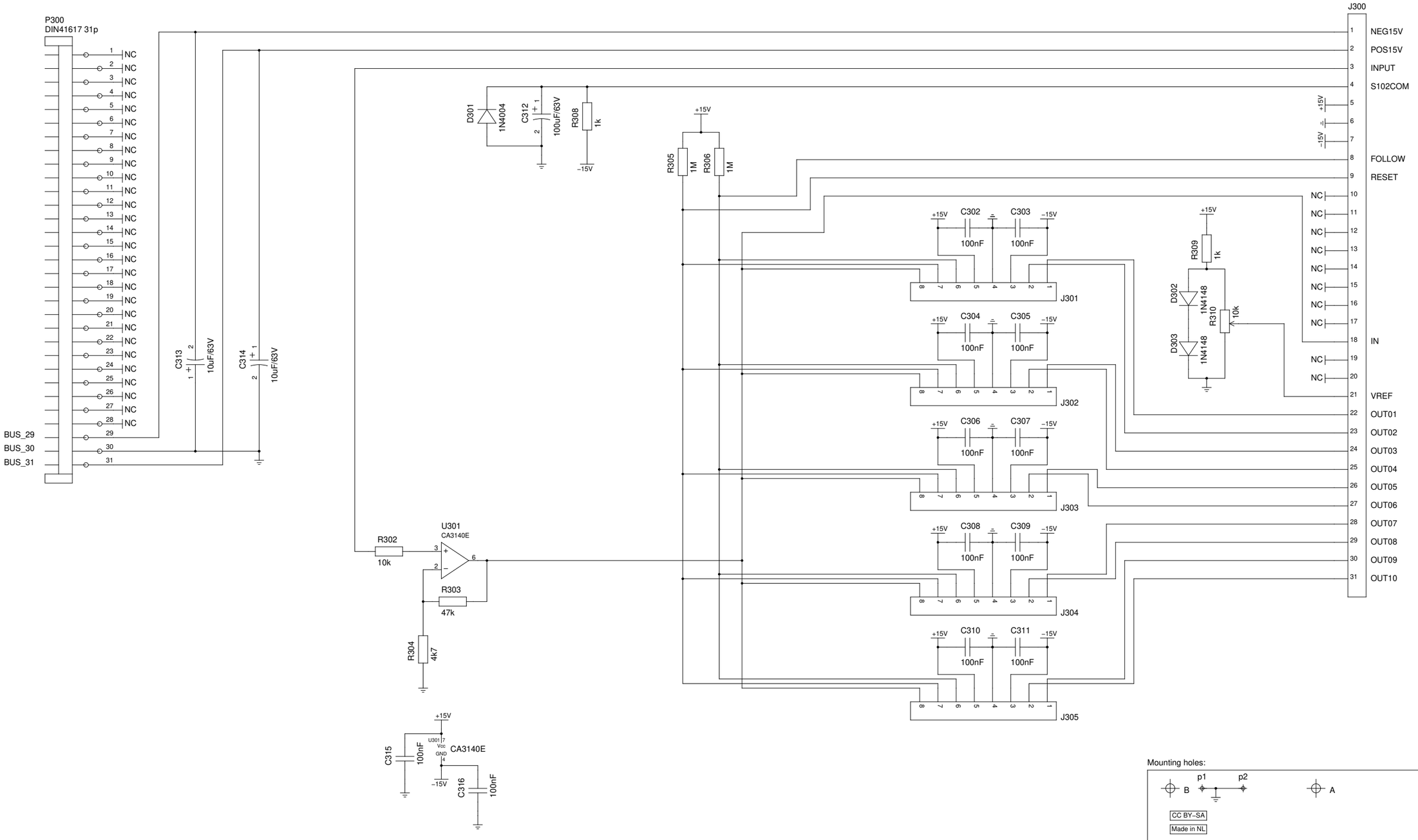


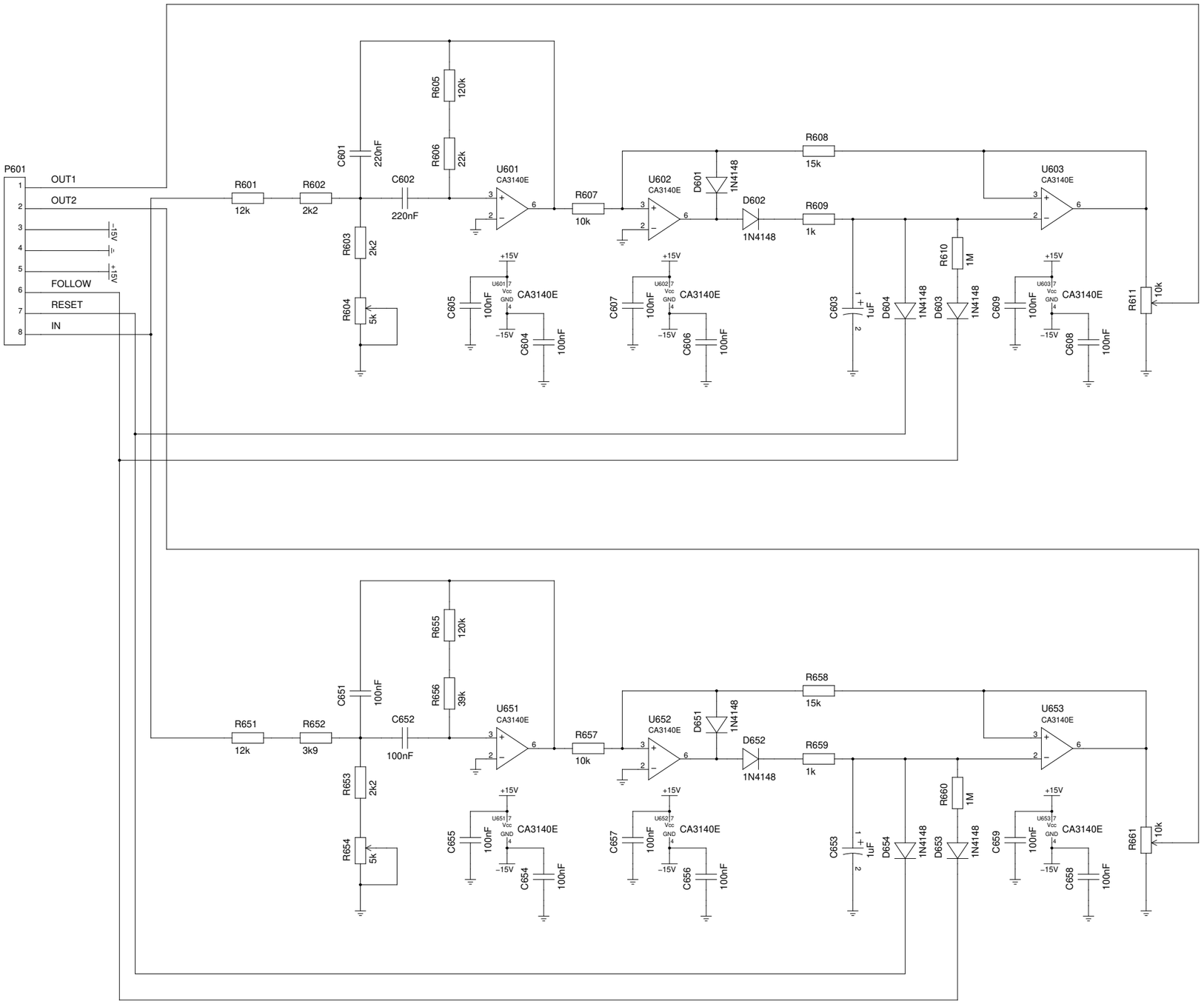
Mounting holes:



TITLE	OCTAVE_FILTER Front pcb Schematic		
FILE:	26.002.00.01.01.sch	REVISION:	20240522
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A1

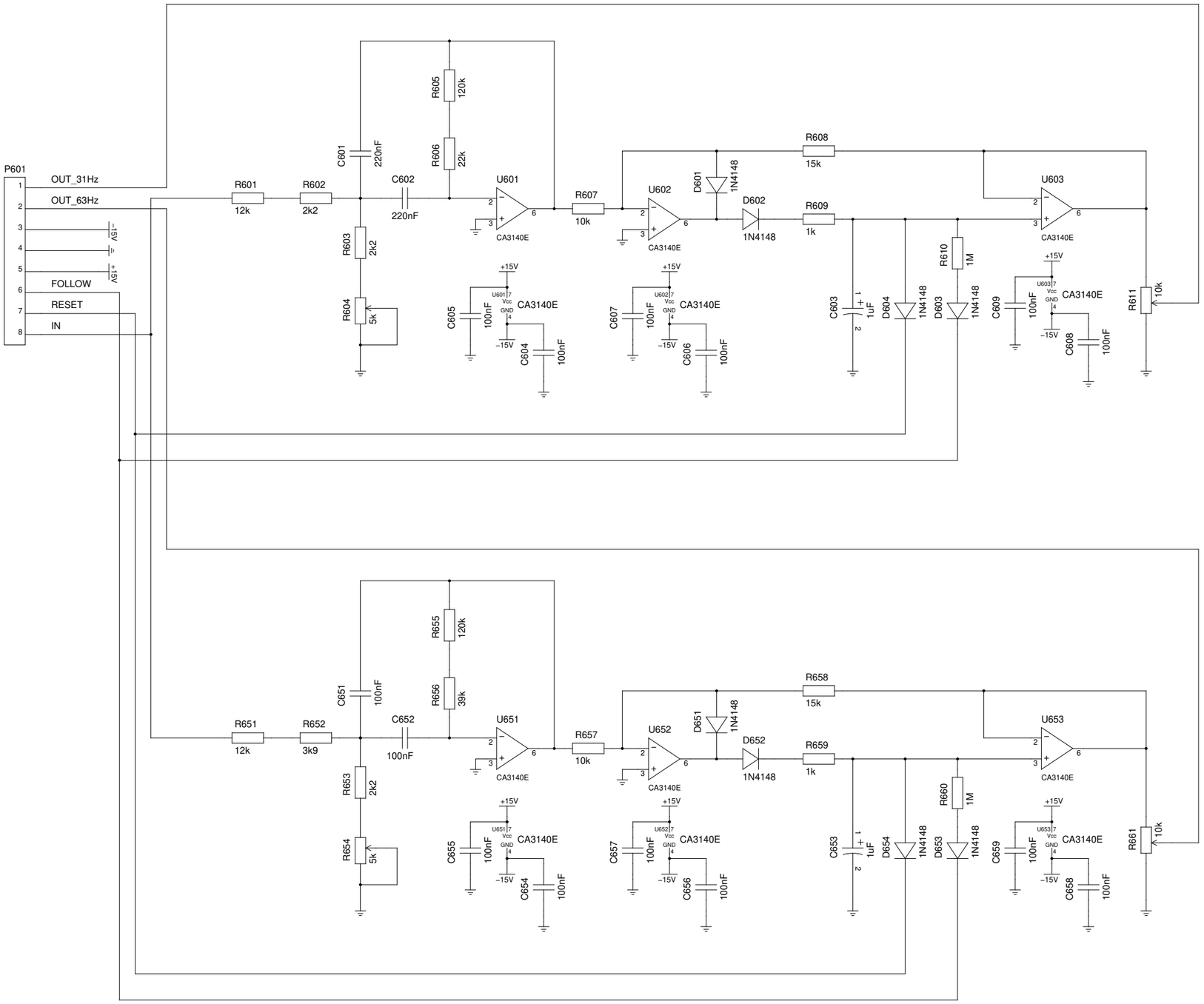

P300
DIN41617 31p
NC
BUS_29
BUS_30
BUS_31
C313
10uF/63V
C314
10uF/63V
D301
1N4004
C312
100uF/63V
R308
1k
−15V
R305
1M
R306
1M
+15V
C302
C303
100nF
J301
C304
C305
J302
C306
C307
J303
C308
C309
J304
C310
C311
J305
R309
1k
D302
1N4148
D303
1N4148
R310
10k
J300
NEG15V
POS15V
INPUT
S102COM
FOLLOW
RESET
IN
VREF
OUT01
OUT02
OUT03
OUT04
OUT05
OUT06
OUT07
OUT08
OUT09
OUT10
R302
10k
U301
CA3140E
R303
47k
R304
4k7
C315
100nF
C316
100nF
Mounting holes:
p1
p2
p3
p4
A
B
C
GND
CC BY−SA
Made in NL
OCTAVE_FILTER
Main pcb
Schematic (DFM)
26.003.00.01.01.sch
20240522
01
OF 01
Bert Timmerman
A1



CC BY SA

	OCTAVE_FILTER 31.5 Hz & 63 Hz module (PTH)		
TITLE	Schematic (DFM)		
FILE:	26.006.00.01.01.sch	REVISION:	20240523
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

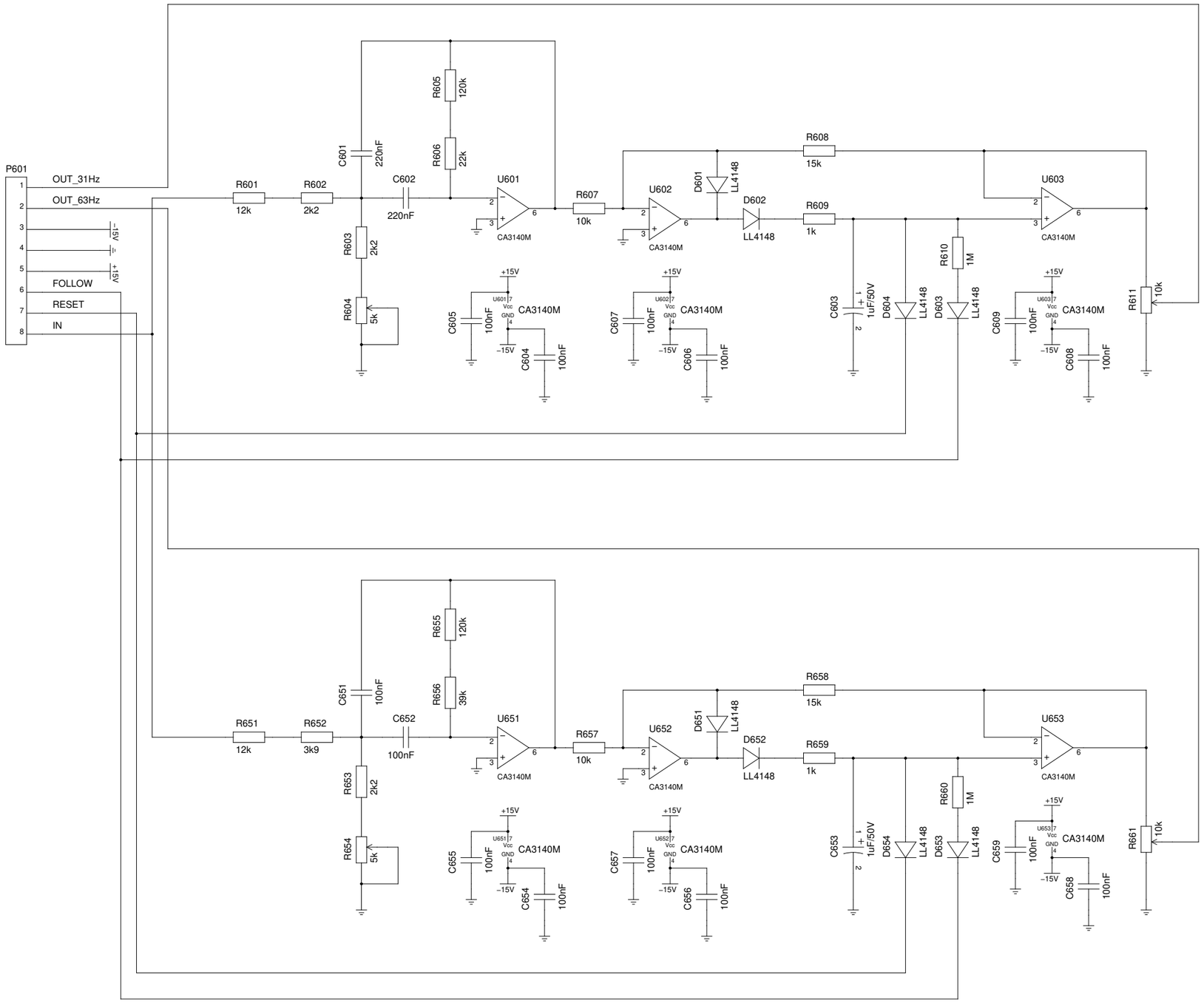
A1



CC BY SA

TITLE	OCTAVE_FILTER 31.5 Hz & 63 Hz module (PTH) Schematic (DFM)		
FILE:	26.006.01.01.01.sch	REVISION:	20240523
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

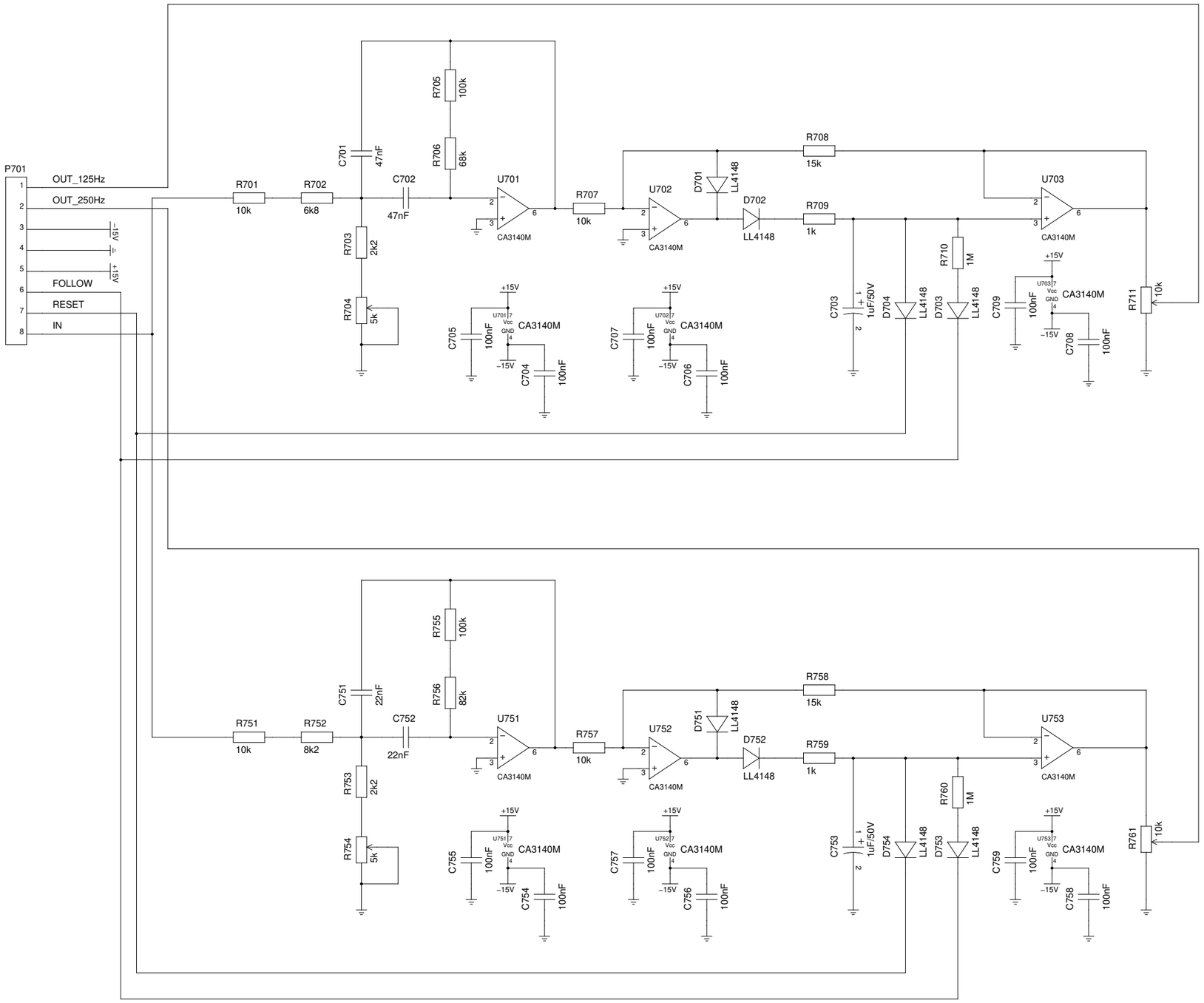
A1



CC BY SA

TITLE	OCTAVE_FILTER 31.5 Hz & 63 Hz module (PTH+SMT) Schematic (DFM)		
FILE:	26.006.02.01.01.sch	REVISION:	20240523
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

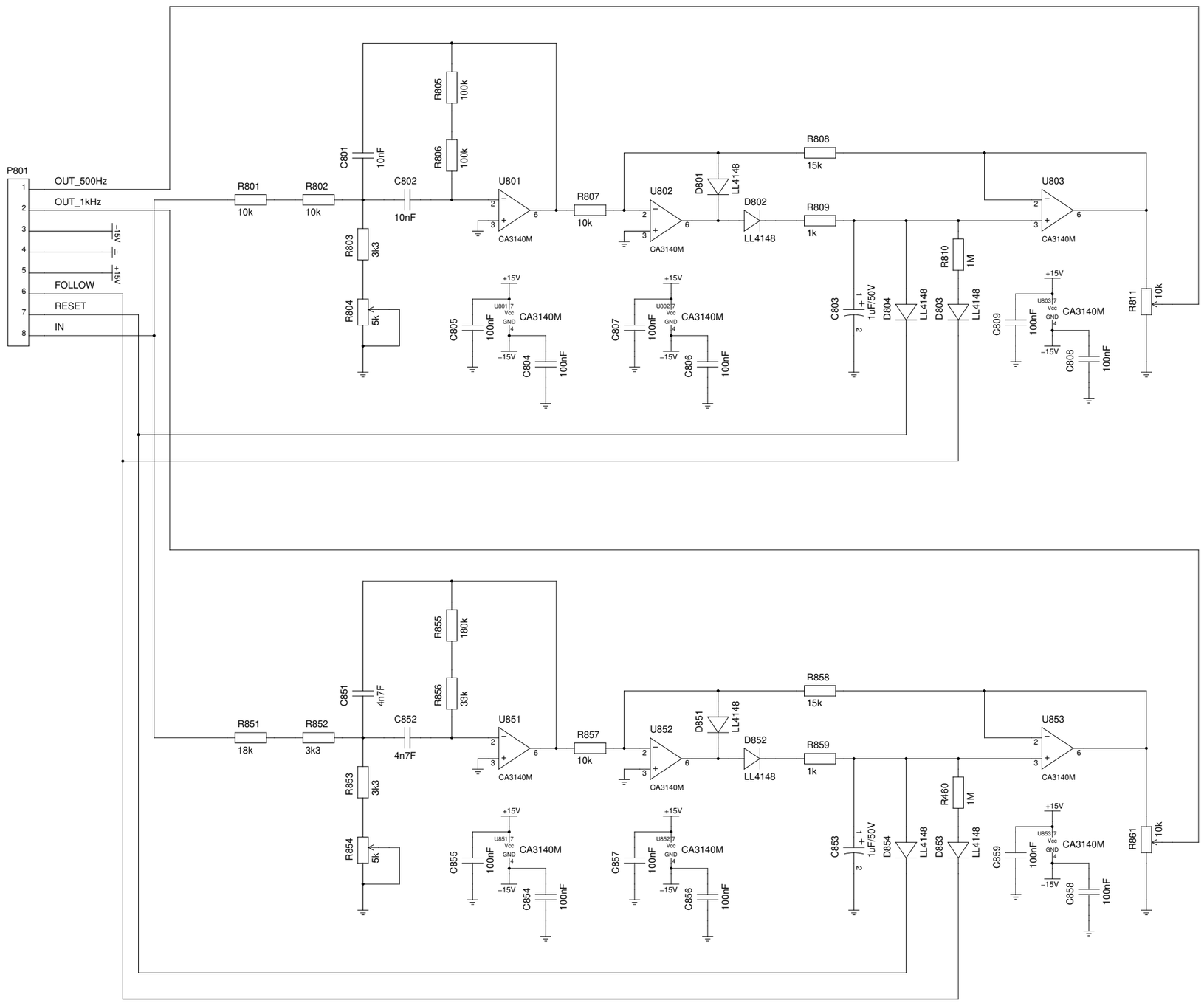
A1



CC BY SA

TITLE	OCTAVE_FILTER 125 Hz & 250 Hz module (PTH+SMT) Schematic (DFM)		
FILE:	26.007.01.01.01.sch	REVISION:	20240523
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

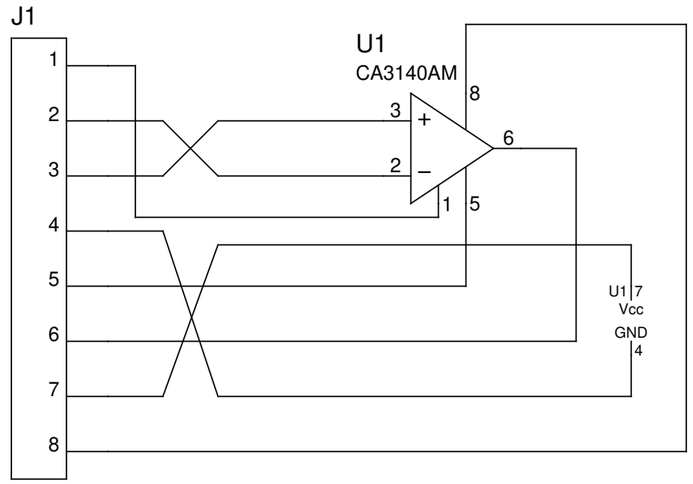
A1



CC BY SA

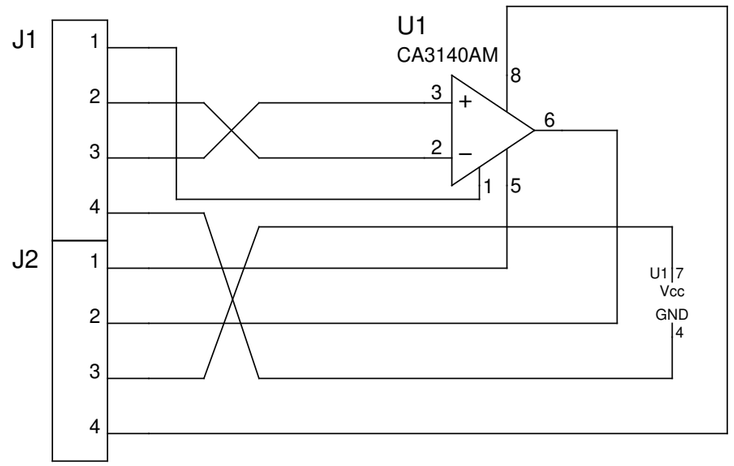
TITLE	OCTAVE_FILTER 500 Hz & 1 kHz module (PTH+SMT) Schematic (DFM)		
FILE:	26.008.01.01.01.sch	REVISION:	20240523
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

A1



CC BY SA

TITLE	OCTAVE_FILTER CA3140M breakout pcb (PTH+SMT) Schematic (DFM)
FILE: 26.999.00.01.01.sch	REVISION: 20240523
PAGE 01 OF 01	DRAWN BY: Bert Timmerman



CC BY SA

OCTAVE_FILTER
CA3140M breakout pcb (PTH+SMT)
TITLE Schematic (DFM)

FILE: 26.999.01.01.01.sch
REVISION: 20240523
PAGE 01 OF 01
DRAWN BY: Bert Timmerman