MEMORANDUM

LIGO HANFORD OBSERVATORY

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DATE: December 16, 2021

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| TO: | ISC team |
| FROM: | Daniel Sigg |
| SUBJECT: | Modifications to the VCO source boards (initial build) |
| Refer to: | LIGO-E2100544-v1 |

Version 3 of VCO source boards, , as originally built, need the following modifications to reduce oscillations in the low noise power supply units.

Capacitors need to be NP0/COG or film, resistors need to be metal film.

Change 1:

Add improved compensation to PVCO supply.

R69 → 15 Ω  
C112 → 470 pF

Change 2:

Add improved compensation to P20 supply.

R70 → 15 Ω  
C113 → 470 pF  
C93 → 2.2 µF

Change 3:

Add improved compensation to VCC supply.

R52 → 1 kΩ  
C87 → 470 pF  
C88 → 47 µF

BOM (for 1 board):

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| **Qty** | **Item** | **Distributor** | **Description** |
| 3 | 399-C0805C471J5GAC7210CT-ND | Digi-Key | C112/C113/C87, 470 pF |
| 2 | RR1220Q-150-D | Digi-Key | R69/R70, 15 Ω |
| 1 | P1.0KDACT-ND | Digi-Key | R52, 1 kΩ |
| 1 | 1276-3137-1-ND | Digi-Key | C88, 2.2 µF, 50V |
| 1 | 490-5528-1-ND | Digi-Key | C88, 47 µF, 10V |