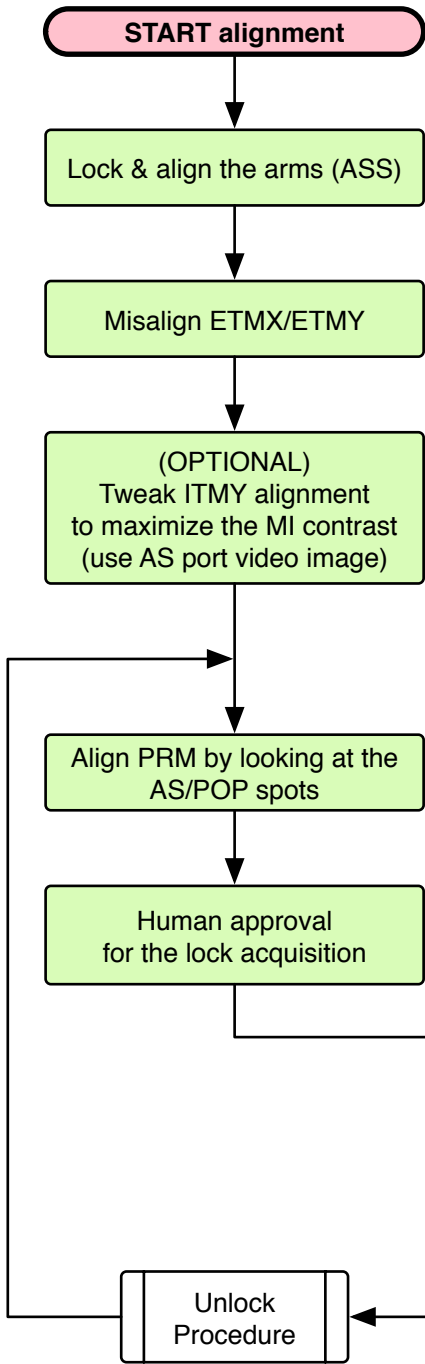


# PRMI locking procedure



## START Lock acquisition

Engage the LSC servo loops

```
ezcawrite 'C1:LSC-MODE_SELECT' 1
```

Acquired lock  
(POP110I > 200)  
within 5sec?

Disengage the LSC loops  
Wait for 5sec for settling down

Run PRMIASCup script

Still locked?  
while running the script

## Steady Locked State

Still locked?

## PRMIASCup script

```
ezcaswitch 'C1:SUS-PRM_ASCYAW' 'OUTPUT' 'ON'
ezcastep 'C1:SUS-PRM_ASCYAW_GAIN=0' '+0.1,10' -s .1
ezcastep 'C1:SUS-PRM_ASCYAW_GAIN=1' '*1.18538,20' -s .3
ezcaswitch 'C1:SUS-PRM_ASCYAW' 'FM2' 'FM3' 'ON'
ezcaswitch 'C1:LSC-PRCL' 'LIMIT' 'OFF'
ezcaswitch 'C1:LSC-MICH' 'LIMIT' 'OFF'
```

## PRMIASCdown script

```
ezcaswitch 'C1:SUS-PRM_ASCYAW' 'OUTPUT' 'OFF'
ezcawrite 'C1:LSC-MODE_SELECT' 0
ezcawrite 'C1:SUS-PRM_ASCYAW_GAIN' 0
ezcaswitch 'C1:SUS-PRM_ASCYAW' 'FM2' 'FM3' 'OFF'
ezcaswitch 'C1:LSC-PRCL' 'LIMIT' 'ON'
ezcaswitch 'C1:LSC-MICH' 'LIMIT' 'ON'
```

## Unlock Procedure

Run PRMIASCdown script

Any watchdog  
tripped?

Run restoreWatchdog script

Wait for settling down

## Exit

# Nominal LSC settings

Port	Whitening Gain	Demod Phase (deg)	Input Matrix
POX11	+36dB	+79.5	I -> +1 for XARM
POY11	+36dB	-61.0	I -> +1 for YARM
REFL33	+30dB	-13.0	I -> +1 for PRCL
REFL55	+15dB	+95.25	
AS55	+15dB	+29.0	Q-> +1 for MICH
POP110	+21dB	+ 2.0	I -> for normalization

DOF	Normalization	Trigger	Gain	Filters (acquisition) (triggered)	Actuator
MICH	sqrt(x0.01 POP110I)	POP110I x1 200up 10down	-30	FM4/5 -	IMTX(-1) / ITMY (+1)
PRCL	sqrt(x100 POP110I)	POP110I x1 200up 10down	+8	FM3/4/5/6 FM2	PRM(+1)
XARM	TRX x1	TRX x1 0.2up 0.1down	+0.35	FM4/5 FM2/3/6/7/8/9	ETMX(+1)
YARM	TRY x1	TRY x1 0.2up 0.1down	+0.2 FM4/5	FM2/3/6/7/8/9	ETMY(+1)