

SELVA Meeting 06/10/2014

Attendees: Jerzy Nogiec, Andrzej Makulski, Roger Nehring, Fred Nobrega, Dana Walbridge, Kelley Trombly-Freytag, Fred Lewis, Lidija Kokoska, Sergey Kotelnikov

• Project Status

- Priority is to get the tension drive (S) operational before Andrzej leaves, followed by the reel up/down control and motor synchronization.
- All drivers are operational apart from S. The replacement drivers have been ordered and one has already been received. We will try that driver to use with the S motor. In driver comparison between the 241 and 242 models the only difference is the output transistor. The 241 model is being checked for changing to the higher current (the transistors have been ordered).
- Bill is restoring the test bench to operational – to be used to test the replacement drivers.
- Reel up/down controls – motor can move; program needs to be altered; Roger will coordinate testing with Sergey.
- Will be testing the mandrel first instead of the bridge. Will ensure the end switches work before working with synchronization. Lidija will get a temporary strongback (that is disposable) and we will do synchronization stress tests with this setup.
- Failsafe system status: needed to order more parts- phase detector and one other element (contactor?). Delivery expected sometime this week. All other parts are here. Neither of these will stop the panel and wiring work. We will attempt to do the installation this Friday-Saturday, if possible (to get Andrzej's help in commissioning). If can't do most on Friday (when Andrzej is here) then we will wait for a week or two.
- Bumper safety devices: need to find the correct depth, and will order them before the next meeting. Will be connected in series with the existing sensors.
- All tygon tubing has arrived. Will try to test before Andrzej leaves.

• Meeting Topics

1. Action items from the previous week
2. Status of the drivers and motor tests: faulty drivers, replacements, Z drive status
3. Preparations for the tension subsystem tests
4. Status of the reel up/down control test
5. Status of the work on failsafe operation and redundancy in safety systems.
6. Preparations for installing the bridge on its tracks: motor synchronization status, X1 driver
7. Safety bumper switches: sensitivity, status
8. Documentation: start check list, interlock list, permissive list.
9. Safety, ideas, comments, etc. (all)

• Safety

- Lights on the bridge are working fine. The lights on the power cabinet are not working correctly (orange).
- Safety improvements will continue (failsafe, redundancy). Also, added a check for the preference of all the power phases.
- The replacement tygon tubing will be tested and new bumper collision sensors ordered.

• Problems

- Problem with the Z mandrel drive; grinding noise; possibly backlash on gear box; Fred N should take a look at it.
- The S driver is not operational and will be replaced as soon as a suitable replacement driver is available.

• Action Items

Jim Rife, Rick Smith, etc.

Lower the Bridge to the tracks/rails.	To be done after motors are running correctly and other testing, most likely sometime next week.	Suspended 6/10/2014
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Fred Nobrega

Check out possible problems with Mandrel z drive	Makes noise	6/10/14
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Fred Lewis

Repair the existing damaged encoder	Waiting on ordered parts	5/20/2014
Install safety system improvements this weekend if panel is complete	Started this past weekend. Will do this week, if possible, or next week (6/10/2014)	5/27/2014
Ensure we have replacement encoders for future use	Will try to order a universal encoder	5/27/2014
Try to change order for new drivers to go from 241 to 242		6/10/14
Connect power for winch		6/10/14
Ensure power cabinet lights work correctly		6/10/14
Test bench	Restore the test bench to be operational (to test new drivers) -Bill	6/10/14
Set up power for tension testing	Check the winch and install power for it in IB3.	6/10/2014

Lidija

Implement mechanical setup for tension testing	Winch is here – machine shop has a template. Power should be connected	Continue 5/6/2014
Install temporary wooden “strongback” for mandrel sync tests	Needed soon, sometime this week	6/10/14

Andrzej

Test X and X1 motors; produce test results note. Sergey will assist	In progress; motor X works, motor X1 works in only one direction. Testing is ongoing	Continue 5/20/2014
Will test air pressure regulator for testing the mandrel		6/10/14
Test tension motor with a replacement driver		6/10/14

Jerzy

Read Functional Specification		6/10/14
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Roger

Execute and document tension control test plan	Documentation is complete, execution suspended on mechanical work	Suspended 4/22/2014
Review Dana’s translation of Reel Up/Down Test Plan into Test Plan template	Review not done (in template)	To be done 5/6/2014
Test functionality of the reel up/down system	In progress	6/3/2014
Test programmatic motion control of the tension motor.	On hold, waiting for driver	6/3/2014
Load cells calibration note		6/10/2014

Sergey

Create note on naming conventions on I/O channels	Clarified, not done.	Incomplete 4/29/2014
Meet with Andrzej and Jerzy decide on synchronizing motor motion inside FPGA	Not yet done. Complete – implementation in FPGA	5/20/2014
Add the reel and tension motor control to the motor test and PID tuning program.	Not complete	6/3/2014
Work on synchronizing the mandrel motors		6/10/14

Dana

	After wiring has been okayed and trenches are covered, then inspect the area for small objects and have them removed		Suspended – waiting for wiring OK
	Investigate and order sensor tubing	Several sizes of tubing have been ordered. If any of them works, this will be complete for the boom. May need to order more tubing for the bridge if bump sensors there are not replaced. -Received – still need to work on it	Continue 5/6/2014
	Create proposal for additional or replacement collision sensors and order the sensors.	Investigate pressure sensitive edges and bumpers. Asked Jim Rife and Fred Nobrega about sensitivity requirements. They want new bumper switches to be close to the old bumpers in sensitivity. -not done	Continue 5/27/2014
	Order new bumpers before next week		6/10/14
	Document: Machine Start checklist		6/10/14
	Document: Interlock list	Name of thing, description, action, and verification column	6/10/14
	Document: Permissives	when a move happens, need to ensure there will be no collision	6/10/14
	Mandrel test plan	Prepare a test plan for testing the mandrel.	6/10/14
	Document: Note on bridge light color		6/10/14

Kelley

	Get a spreadsheet of the results of testing I/O signals.	Put in SELVA wiki All I/O signals not yet defined - doc not complete	Suspended 5/20/2014
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TBD

	Add comments to the FPGA I/O test program	Describe all I/O channels	TBD
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Completed Action Items

	Jim Rife, Rick Smith	Remove the mandrel support bar from the mandrel motion subsystem in order to test the motors. Lidija will observe and record how it is done so that T&I	6/10/2014
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		technicians can do it in the future.		
Fred Nobrega	Supply a functional specifications document	The first draft has been completed.		6/10/2014
Fred Lewis	Order motor drivers	Complete		6/10/2014
Andrzej	Test the mandrel motors	Complete		6/10/2014
Andrzej	Test the boom motor	Complete		6/10/2014
Andrzej	Try to lower the driver voltage to provide stable operation conditions.	Inserting 10 diodes to lower the voltage.		6/10/2014
Roger	Calibrate the tension system; get fixture from Lidija; work with A re time with machine	Calibration tests done to get slope. There is drift over time whose cause is not yet known. Present results are sufficient for now. More precise tests will be done later		6/10/2014
Lidija	Create fixture for tension calibration fixed load, needed this week			6/10/2014