8000/9000
MACHINE MANUAL

PROPERTY OF:

HI-TECH ASPHALT SOLUTIONS, INC.

LEASING AND SERVICE:

PHONE **(804) 779-4871**
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FIBER RATE

PLANT	0.15% Fiber = 3 lbs. per ton		0.2% Fiber = 4 lbs. per ton		0.25% Fiber = 5 lbs. per ton	
TPH	FIBER lb/min	FIBER TPH	FIBER lb/min	FIBER TPH	FIBER lb/min	FIBER TPH
100	5.0	0.15	6.7	0.20	8.3	0.25
105	5.3	0.16	7.0	0.21	8.8	0.26
110	5.5	0.17	7.3	0.22	9.2	0.28
115	5.8	0.17	7.7	0.23	9.6	0.29
120	6.0	0.18	8.0	0.24	10.0	0.30
125	6.3	0.19	8.3	0.25	10.4	0.31
130	6.5	0.20	8.7	0.26	10.8	0.33
135	6.8	0.20	9.0	0.27	11.3	0.34
140	7.0	0.21	9.3	0.28	11.7	0.35
145	7.3	0.22	9.7	0.29	12.1	0.36
150	7.5	0.23	10.0	0.30	12.5	0.38
155	7.8	0.23	10.3	0.31	12.9	0.39
160	8.0	0.24	10.7	0.32	13.3	0.40
165	8.3	0.25	11.0	0.33	13.8	0.41
170	8.5	0.26	11.3	0.34	14.2	0.43
175	8.8	0.26	11.7	0.35	14.6	0.44
180	9.0	0.27	12.0	0.36	15.0	0.45
185	9.3	0.28	12.3	0.37	15.4	0.46
190	9.5	0.29	12.7	0.38	15.8	0.48
200	10.0	0.30	13.3	0.40	16.7	0.50
205	10.3	0.31	13.7	0.41	17.1	0.51
210	10.5	0.32	14.0	0.42	17.5	0.53
215	10.8	0.32	14.3	0.43	17.9	0.54
220	11.0	0.33	14.7	0.44	18.3	0.55
225	11.3	0.34	15.0	0.45	18.8	0.56
230	11.5	0.35	15.3	0.46	19.2	0.58
235	11.8	0.35	15.7	0.47	19.6	0.59
240	12.0	0.36	16.0	0.48	20.0	0.60
245	12.3	0.37	16.3	0.49	20.4	0.61
250	12.5	0.38	16.7	0.50	20.8	0.63
255	12.8	0.38	17.0	0.51	21.3	0.64
260	13.0	0.39	17.3	0.52	21.7	0.65
265	13.3	0.40	17.7	0.53	22.1	0.66
270	13.5	0.41	18.0	0.54	22.5	0.68
275	13.8	0.41	18.3	0.55	22.9	0.69
280	14.0	0.42	18.7	0.56	23.3	0.70
285	14.3	0.43	19.0	0.57	23.8	0.71
290	14.5	0.44	19.3	0.58	24.2	0.73
295	14.8	0.44	19.7	0.59	24.6	0.74
300	15.0	0.45	20.0	0.60	25.0	0.75
305	15.3	0.46	20.3	0.61	25.4	0.76
310	15.5	0.47	20.7	0.62	25.8	0.78
315	15.8	0.47	21.0	0.63	26.3	0.79
320	16.0	0.48	21.3	0.64	26.7	0.80
325	16.3	0.49	21.7	0.65	27.1	0.81
330	16.5	0.50	22.0	0.66	27.5	0.83
335	16.8	0.50	22.3	0.67	27.9	0.84
340	17.0	0.51	22.7	0.68	28.3	0.85
345	17.3	0.52	23.0	0.69	28.8	0.86
350	17.5	0.53	23.3	0.70	29.2	0.88
355	17.8	0.53	23.7	0.71	29.6	0.89
360	18.0	0.54	24.0	0.72	30.0	0.90
365	18.3	0.55	24.3	0.73	30.4	0.91
370	18.5	0.56	24.7	0.74	30.8	0.93

FIBER RATE

PLANT	0.3% Fiber = 6 lbs. per ton		0.35% Fiber = 7 lbs. per ton		0.4% Fiber = 8 lbs. per ton	
TPH	FIBER lb/min	FIBER TPH	FIBER lb/min	FIBER TPH	FIBER lb/min	FIBER TPH
100	10.0	0.30	11.7	0.35	13.3	0.40
105	10.5	0.32	12.3	0.37	14.0	0.42
110	11.0	0.33	12.8	0.39	14.7	0.44
115	11.5	0.35	13.4	0.40	15.3	0.46
120	12.0	0.36	14.0	0.42	16.0	0.48
125	12.5	0.38	14.6	0.44	16.7	0.50
130	13.0	0.39	15.2	0.46	17.3	0.52
135	13.5	0.41	15.8	0.47	18.0	0.54
140	14.0	0.42	16.3	0.49	18.7	0.56
145	14.5	0.44	16.9	0.51	19.3	0.58
150	15.0	0.45	17.5	0.53	20.0	0.60
155	15.5	0.47	18.1	0.54	20.7	0.62
160	16.0	0.48	18.7	0.56	21.3	0.64
165	16.5	0.50	19.3	0.58	22.0	0.66
170	17.0	0.51	19.8	0.60	22.7	0.68
175	17.5	0.53	20.4	0.61	23.3	0.70
180	18.0	0.54	21.0	0.63	24.0	0.72
185	18.5	0.56	21.6	0.65	24.7	0.74
190	19.0	0.57	22.2	0.67	25.3	0.76
200	20.0	0.60	23.3	0.70	26.7	0.80
205	20.5	0.62	23.9	0.72	27.3	0.82
210	21.0	0.63	24.5	0.74	28.0	0.84
215	21.5	0.65	25.1	0.75	28.7	0.86
220	22.0	0.66	25.7	0.77	29.3	0.88
225	22.5	0.68	26.3	0.79	30.0	0.90
230	23.0	0.69	26.8	0.81	30.7	0.92
235	23.5	0.71	27.4	0.82	31.3	0.94
240	24.0	0.72	28.0	0.84	32.0	0.96
245	24.5	0.74	28.6	0.86	32.7	0.98
250	25.0	0.75	29.2	0.88	33.3	1.00
255	25.5	0.77	29.8	0.89	34.0	1.02
260	26.0	0.78	30.3	0.91	34.7	1.04
265	26.5	0.80	30.9	0.93	35.3	1.06
270	27.0	0.81	31.5	0.95	36.0	1.08
275	27.5	0.83	32.1	0.96	36.7	1.10
280	28.0	0.84	32.7	0.98	37.3	1.12
285	28.5	0.86	33.3	1.00	38.0	1.14
290	29.0	0.87	33.8	1.02	38.7	1.16
295	29.5	0.89	34.4	1.03	39.3	1.18
300	30.0	0.90	35.0	1.05	40.0	1.20
305	30.5	0.92	35.6	1.07	40.7	1.22
310	31.0	0.93	36.2	1.09	41.3	1.24
315	31.5	0.95	36.8	1.10	42.0	1.26
320	32.0	0.96	37.3	1.12	42.7	1.28
325	32.5	0.98	37.9	1.14	43.3	1.30
330	33.0	0.99	38.5	1.16	44.0	1.32
335	33.5	1.01	39.1	1.17	44.7	1.34
340	34.0	1.02	39.7	1.19	45.3	1.36
345	34.5	1.04	40.3	1.21	46.0	1.38
350	35.0	1.05	40.8	1.23	46.7	1.40
355	35.5	1.07	41.4	1.24	47.3	1.42
360	36.0	1.08	42.0	1.26	48.0	1.44
365	36.5	1.10	42.6	1.28	48.7	1.46
370	37.0	1.11	43.2	1.30	49.3	1.48

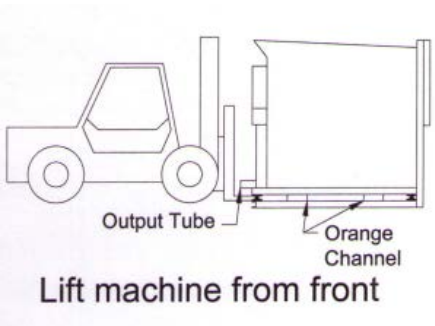
Hi-Tech
ASPHALT SOLUTIONS

FIBER METERING DEVICE INSTALLATION

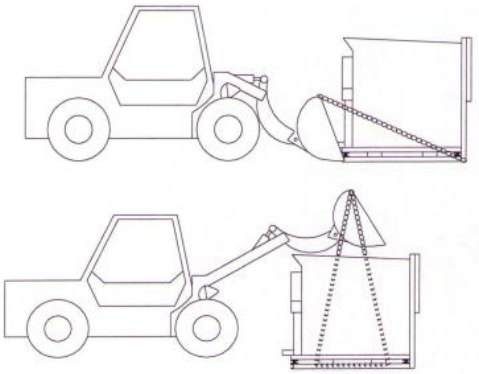
UNLOADING AND HANDLING

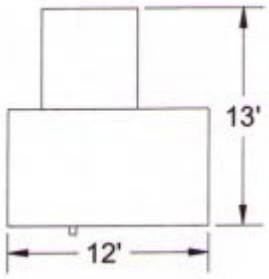
1. Unit requires a forklift, front-end bucket loader, or crane with a lifting capacity of at least 12,000 pounds because of the overhung load of the machine. (ONLY use orange areas on the channels to insert forks or attach chains for lifting machine.)

NOTE: Never attach chain above load cells unless machine has lifting eyes. Lifting eyes are the only place to attach chains above load cells.



Lift machine from front


Chain is wrapped around the channels between the Wind Guard and the machine

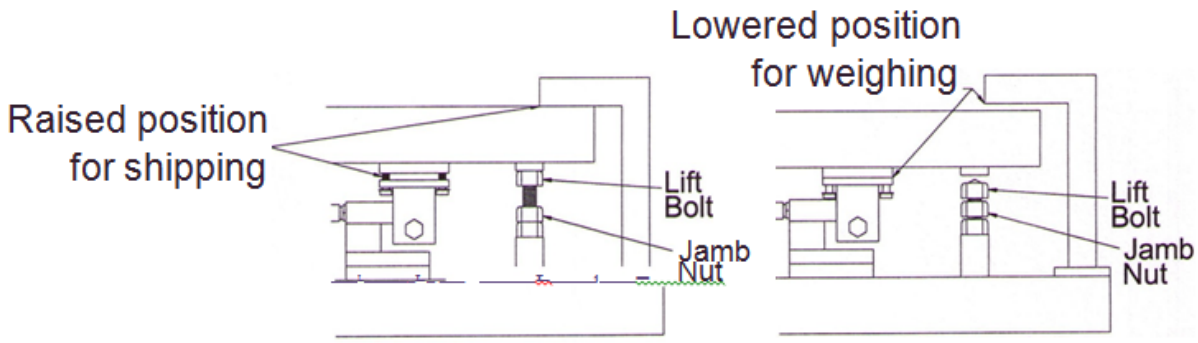


2. Select proper location for machine. Considerations:
   a) Locate unit on a **level** surface.
   b) Machine should be within 50ft of fiber injection point into Drum or Batch plant and 250ft of control tower.
   c) Machine should be protected from wind as much as possible. Wind gusts can cause fluctuation in the scale reading and should be avoided by erecting a temporary wind break.
   d) Easy access for loading fiber and overhead clearance for Lift Bucket at full loading height.
   e) Plant Operator in control tower should be able to see machine or at least fiber hose.
3. Remove hose from inside the hopper and attach to machine.

SHIPPING INSTRUCTIONS

1. Run machine until most of the fiber is out of machine.
2. Unplug controller and return to shipping box on back of machine. Lock shipping box closed.
3. Disconnect 480 volt power from machine.
4. Disconnect fiber hose and place in hopper.
5. Lower amber revolving light.
6. Raise the load cell Lift Bolt on each corner until the machine hits the upper stop. The upper load cell bracket should be able to wiggle. Tighten Jamb Nut down to prevent Lift Bolt from loosening.

NOTE: Lift weight of machine off all load cells before shipping



7. Unbolt and remove side and back extensions on the Lift Bucket.
8. Make sure these items are packed with machine.
   - Hose and hose clamps
   - Output Tube
   - Hose and Plant Adapter (if applicable)
   - Owners Manual
   - Controller inside locked shipping box
   - Tarp Crank Handle
   - Side and back extensions for lift
   - Printer (if applicable)
   - 480 volt cord connector and cord (if applicable)
9. Fold up catwalk.
10. Wrap up cable on machine and secure with straps.
11. Close tarp and secure with tie downs.

MACHINE OPERATION INFORMATION

CALIBRATION

ZERO

Press ACT, CAL, ZERO
Make sure hopper is empty and machine is on load cells.
Press START.
After scale is stable, it will have a new calculated zero. If the scale is not stable you cannot rezero.
If the New Zero is 4500-6500lbs, you can press ACCEPT.
If not, there is something wrong. Press CANCEL.
Press MAIN.

WEIGHT **WARNING:** Be very certain Cal Weight is on hopper and not on a dead part of machine.
Press SET, CALIB PARAMS, down arrow.
Type Cal Weight that you want to put on hopper. Press ENT, ESC, MAIN.
Put specified weight on hopper. Some weight should show on screen. If not, go to Troubleshooting.
Press ACT, CAL, WEIGHT.
Make sure specified Cal Weight on screen matches what you put on hopper.
Press START.
WARNING: NEVER press Accept if the New Scale Factor is not between 40 and 120.
After scale is stable and new Scale Factor comes up, press ACCEPT, MAIN.

DRUM PLANT

IF CONTROLLER IS SET TO BATCH CHANGE THESE PARAMETERS FOR DRUM

Turn Mode Select Switch to "Drum".
Press MANUAL SPD, press AUTO, press LOCAL, Press MAIN.
Press SET, PID PARAMS, up arrow until Average Slots, type 50, press ENT, ESC.
Press STABILITY PARAMS, down arrow until Stable Samples, type 5, press ENT, ESC.
Press LIMIT SWITCHES, WEIGHT, down arrow until Lo Weight, type 0, press ENT, ESC, ESC.
Press HOPPER PARAMS, down arrow until Heel Point, type 350, press ENT, ESC.
Press MORE, DIGITAL INPUTS, down arrow until Allow Batching is in middle, press TAB, down arrow so Always OFF is in middle, press ESC, MAIN.

SET SPEED

Setpoint Control Switch on "Plant Computer". (best option)
Rem Ana on screen shows lb/min that Plant Computer wants the fiber machine to run.
Bottom, center of screen should show Rem Ana. If not, press that button, press AUTO button if showing, press Local Button. (Rem Ana should be showing in bottom left.)
Plant Computer speeds up fiber machine with plant speed. If this is not the correct amount, adjust the long grey potentiometer inside the controller.
If this doesn't work change Setpoint Control Switch to "Controller".

Setpoint Control Switch on "Controller". (OK if plant speed signal not right)
Rem Ana on screen shows lb/min that you want the fiber machine to run.
You turn the Setpoint Adjustment Dial to match Fiber Machine with Plant Speed.
If changing dial doesn't affect Rem Ana number on screen, press Rem Ana.
Press Rem Ana again, press Rem Ratio, press Rm Serial, Numeric, type in desired lb/min and press ENT. Press ESC, press Main.
If this doesn't work, change Setpoint Control Switch to "Manual".

Setpoint Control Switch on "Manual". (last resort to run machine)
You turn the Setpoint Adjustment Dial to speed up or down the auger motor.
Display on ABB at machine is about lb/min. Count fiber used to determine speed.

START/STOP MACHINE

Start Select Switch on "Auto Drum"

Plant automatically starts machine when AC Run.
Automatically stops machine when no AC Run.
Emergency Stop Button must be out to run, but will stop machine if needed.

Start Select Switch on "Manual Drum".

Push green button to start, red button to stop.

CLEANOUT MACHINE

To run machine below 300 Heel Point (Refill).
Press REM ANA, START CLEANOUT.
Press red button to stop.

RESET TOTALS

Press ACT, RESET.

FEEDRATE

The FR should constantly vary, but only about 2lb/min. If it doesn't vary at all it is not working. Check the scale stability (S Quality). Press right arrow 2 times. The S Quality should be 60-90% and it will change. If it is below 60%, the scale is unstable and the FR will not be totally accurate. If the FR doesn't change for more than 2 minutes, check the PID parameters. Press right arrow.
Press SET, PID PARAMS. Look at the Loss Slots value. If it is above 65, change these parameters.
With the box around Gain, type 72 and press ENT.
Press up arrow. With the box around Loss Slots, type 50 and press ENT.
Press up arrow. With the box around Average Slot, type 50 and press ENT.
Press up arrow 3 times. With the box around Derivative, type 0.9 and press ENT.
Press up arrow. With the box around Integral, type 0.017 and press ENT. Press ESC, MAIN.
Those parameters change after every refill. The slots will go lower if the S Quality is high, which is good. The slots will go higher if the S Quality is low which is bad. If the slots are 100, then the S Quality is so bad that it doesn't know what the FR is. You must fix the scale to get a better S Quality. See "Weight Problems" above.

PROBLEM WITH FIBER IN THE MIX.

Verify that Plant Computer is telling fiber machine right amount.
Check FR: lb/min by looking at hopper weight and timing for 1 minute.
Check hopper weight accuracy by placing known weight on hopper.
Is hose/pipe in drum plugged up.
Are there chunks of AC soaked fiber in mix?
Is there right amount of AC going into the mix?
Is there right amount of Dust/Mineral Filler going into the mix?
Is there more dust in aggregates? (Rain will wash dust to the bottom of aggregate pile.)

BATCH PLANT

CHANGE CONTROLLER FROM DRUM TO BATCH

Turn Mode Select Switch to "Batch".
Press REM ANA, press MANUAL, hit up or down arrow until desired speed (75%) Press MAIN.
Press SET, PID PARAMS, up arrow until Average Slots, type 7, press ENT, ESC.
Press STABILITY PARAMS, down arrow until Stable Samples, type 8, press ENT, ESC.
Press HOPPER PARAMS, down arrow until Heel Point, type 0, press ENT, ESC.
Press LIMIT SWITCHES, WEIGHT, down arrow until Lo Weight, type 300, press ENT, ESC, ESC.
Press MORE, DIGITAL INPUTS, down arrow until Allow Batching is in middle, press TAB, down arrow so Always ON is in middle, press ESC, MAIN.
Press BATCH, SETPOINT, type batch amount, press ENT, ESC, MAIN.

SET SPEED

Setpoint Control Switch on "Controller".

START/STOP MACHINE

Start Select Switch on "Auto/Manual Batch".
Push green button to start a batch, red button to prevent batch start.

CHANGE BATCH AMOUNT

Press BATCH, SETPOINT, type batch amount, press ENT, ESC, MAIN.

CLEANOUT MACHINE

To run machine below 300 Low Weight (Refill).
Press SET, LIMIT SWITCHES, WEIGHT, down arrow until Lo Weight, type 0, press ENT, ESC, ESC.
Warning: Batch time will be longer below 300 pounds.

RESET TOTALS

Press ACT, RESET.

SETUP QUESTIONS

Does machine have to be on cement pad?

No, but machine must be leveled with shims.

Where should the fiber be injected?

BATCH PLANT

Care must be taken so that fiber is not sucked into baghouse. (i.e. fiber blown in when aggregate is dumping so aggregate traps fiber.)

The wet mix time must be increased by 15-20 seconds to allow fiber enough time to be injected and mixed.

Weld a 4" Pipe into the Pugmill so that the fiber stream doesn't hit anything and the Aggregate Discharge or Asphalt Discharge may be used to start fiber machine with 120 volt pulse.

or

The 4" Pipe can also be put into the Weigh Hopper. Then the 1st or 2nd aggregate discharge may be used to start fiber machine with 120 volt pulse.

DRUM PLANT

The 4" pipe can be welded into the RAP Collar, Dust Collar, Dust Screw, Mineral Filler Screw or back of drum.

In all situations, take care to make the pipe as straight as possible. Make sure the pipe is aimed so there is plenty of opening for fiber and other materials (i.e. dust, mineral filler).

If the fiber is injected into a screw auger, make sure there is enough room in the auger for fiber. Also, make sure that the fiber machine is never on without auger running. It will plug the screw and break it.

If the fiber is injected into a collar on the drum and the drum is not a double barrel, make sure the fiber goes in and rotates down around the drum to give it time to mix before being dropped into the vail.

If the fiber is injected into the back of the drum, make sure there is not a sharp elbow at the end of the pipe where it blows into the AC. Also make sure the AC can't drip down and plug the fiber line. We want the fiber to get hit with AC before the fiber is sucked into the airstream, but we want the fiber mixed properly (no clumps of AC soaked fiber).

NOTE: A 4" pipe has a 4 ½" Outside Diameter. If you do not want to use a 4" cam lock coupler, then you can slice the hose a couple of inches and put it on the pipe with hose clamps and duct tape. Don't use a smaller pipe than the hose, because the hose will plug at any restrictions.

How is the controller hooked to the plant computer?

See Plant Computer Hookup Instructions.

WEIGHT PROBLEMS

Weight bouncing

Wind?

Person on hopper?

Loose connection in load cell wires, summing board on machine, PCAD board in controller?

Weight drifting

Moisture on connections or moisture in cut in cable?

Loose connection in load cell wires, summing board on machine, PCAD board in controller?

Bad load cell?

Bad summing board on machine?

Bad PCAD board in controller?

No weight signal

Make sure the load cell cable is connected and plugged into the correct port.

The smallest black cable of the 3 coming from the machine should be hooked up to the connectors on the back of the controller labeled Load Cell.

If the controller doesn't have a load cell connector on the back, then the load cell cable should be connected inside the controller on the left side. It should be hooked up to the second board on the 8 pin connector. (There isn't anything that gets hooked up to screw #8.) There is a chart on the bottom of the controller to hook up the color to the number.

Press ACT, DIAG DISPLAY, PCAD DIAG.

LC Output should be 1.0000-2.0000mV/V. Zero Wt should be 4500-6500 lbs.

If not, measure Red and Black wire in controller PCAD connector for about 8 VDC.

If not, bad PCAD board. If is, measure green and white wire for 10-20mVDC.

If not, problem outside. If is, problem with PCAD board or program.

If green and white wires do not measure 10-20mVDC.

Unhook each load cell green and white wire from summing board on machine.

If not 5-25mV, then bad load cell.

If they are, then problem in summing board or cable to control room.

MACHINE TROUBLESHOOTING

Machine fails to run.

Press orange Power Button on machine. If orange Power Light does not come on:

- Check 2 Kill Switches on top of hopper.
- Check Kill Switch on front of machine Panel Box.
- Check Limit Switch under guard.

Press orange Power Button on machine. If orange Power Light still does not come on:

- Check 480 volt power on by looking at ABB readout in Panel Box.
- Open Panel Box and check for tripped motor overload. (Located in the bottom middle right of Panel Box)
  - There will be a small orange square between the dial and the letters LR2
  - Press the Reset button on the Overload that is tripped. If one was tripped, there is a motor that is locked or air filter is plugged.
  - Close door and press Power Button. If orange Power Light still does not come on:
  - Check all fuses.

Orange Power Light is on, but machine won't start.

- Make sure Kill Switch on Controller is out.
- Make sure MC3 shows REM ANA on screen and has a number above 2.
- Make sure ABB is not tripped. Look at readout on ABB. If it is tripped, turn off main power and wait 1 minute and turn back on.

Blower does not come on, but machine does.

Machines built before #75 (9/01) that haven't been upgraded need rewired for dry contact Blower Off Delay. There will be 1 red wire on the left side of Blower Off Delay Relay. There needs to be 2 orange wires.

Can't dump lift automatically.

Make sure Kill Switch on Lift Controls is not pushed in.
Make sure Auto Refill Switch is set to Auto.
Make sure Kill Switch on controller is not pushed in.

Machine does not refill automatically when machine is running.

Make sure hopper weight is below Heel Point and controller shows Filling.
Make sure controller does not have Cleanout on top of screen.

ABB trips when a new bale is dumped into machine.

Break up the bale with the forklift when the bale is sitting on the Lift Bucket.
Don't put hard wet bales in the machine.
Don't pick up stones off ground when cleaning up fiber.
Make sure tools don't get lost in machine.
If machine is empty break up some fiber and dump into machine for a preconditioned base.

VARIABLE SPEED DRIVE TROUBLESHOOTING

ABB starts but runs at 0 hertz.

Make sure ABB is getting a 0-10VDC signal to Hand terminals 123(234 on 401ABB) if B10 and B13 (B8 and B11 on 401ABB) **are not** closed.

Make sure ABB is getting a 0-10VDC signal to Auto terminals B5 and B6 if B10 and B13 (B8 and B11 on 401ABB) **are** closed. Make sure B5 is positive and B6 is negative.

Also make sure there is a jumper between B11 and B16.

Make sure jumpers are on ABB to select voltage or current corresponds to Rate Controller.

Make sure MC3 shows REM ANA on screen and has a number above 2.

Reference signal from controller bounces.

Make sure all jumpers are in place in ABB.

ABB unit won't start from controller.

401 ABB is in local mode. It should be in Remote. Press and hold Local/Remote button until Remote Control shows on display.

FL 2 DC Overvoltage.

Water in motor.

Starting and stopping machine by main disconnect several times. Stop motor before shutting off.

FL 9 Motor Overtemp

Motor is running too slow (below 13 hertz) speed up motor by closing slidegate or unhooking an auger or both.

Install a fan to blow on motor.

AL 5 Button Disabled

ABB is set to REM mode which won't allow the keypad to function. Change to LOC. Press and hold Local/Remote button until Local Control shows on display.

501 ABB TROUBLESHOOTING

Remote keypad reads "Status: No Connection."

The Bits are wrong. Change keypad to 9600 Bits.

Can't change Application Macros.

Does * button work?

Does → button work?

Setting #20 Parameter Lock should be open.

If it is locked press *.

Press ↑ button until 358.

Press *.

WOODS DRIVE TROUBLESHOOTING

Machine runs too slow.

Increase maximum hertz to 100.

Increase the size of the sprocket on the 5 horse motor that drives the screw augers. CAUTION: This will lower the torque capacity. Make sure the load on the motor can handle the larger sprocket.

MC3 TROUBLESHOOTING

With any problem in the MC3, like any computer, try turning it off, and then, turn it back on again to see if this solves the problem.

SCREEN LOCKS UP

Display goes to Merrick logo screen and shows this at the bottom:

Tstin() lin out of range.
This is caused by change in some value from old software to new software. Do a Ram Reset. Press top left corner and top right corner when turning on controller.

Tstin(): not a logical input.
This usually occurs when you added software without doing a Ram Reset afterwards.
Occurs when pressing Setpoint; need to Ram Reset. Press top left corner and top right corner when turning on controller.

Setout 0: not a logical output.
This usually occurs when you added software without doing a Ram Reset afterwards.

M6103
Problem with A/D board. (PCAD board)
Calibrated incorrectly. If it won't recalibrate correctly, you will have to change the Register (See "Can't recalibrate, Scale is unstable" below.)
Try Ram Reset. If it does it again there is a problem with one or more computer boards.

MC3 is locked up. (The screen looks ok, but nothing on screen changes. Machine is still running, but it is not refilling.) Also see next problem.
Turn off controller. Pause. Turn back on. It might lose its parameters and you will have to reenter all of them.
If it doesn't start back up, do a Ram Reset. Press top left corner and top right corner when turning on controller.
If it won't Ram Reset, the Static Ram chip is bad; send controller back for repair or maybe just CPU board.

MC3 locks up while running in Rate Control or between batches in Batching. Also see next problem.
Problem in DC Power cable if the connector is discolored at the CPU board end or Power Supply end. (Clear connectors on Rev. 8 cable are no good.)
[2001 Power Supply, CPU, and DC cable was changed to 7 wire and bigger gauge]
Problem in CPU board.
Problem in DC power supply. (Make sure there is not more than 2ohms on red wire or less than 4.6 volts on red and black wires.)

Screen goes black after they have been running for a while. (10 hours maybe)
Screen Saver. Press screen to turn it on. Set Display Parameter higher (or 0 if don't want screen saver). [Press SET, MORE, DISPLAY PARAMS, DISPLAY NUMERIC, Type in 50,000. Press ENT, ESC, ESC, MAIN.]

Nothing happens when the screen is touched, but screen still changes when weight changes.
Make sure the 2 cables are plugged into the back of screen.
Loosen the 4 screws on the front of the screen.
Install a new touchpad or display board.

WEIGHT PROBLEMS

S-Quality low or 0.

Make sure units are set to lb/min.
Set slots on PID parameters to 50. Run through a Quick Setup.
Make sure you have a stable weight.
Set Max Flow Span = 2 lbs. [Press SET, STABILITY PARAMS, ↓ until Max Flow Span. Type 2. Press ENT, ESC, MAIN.]

Weight bounces when run machine.

Check for mechanical problems with augers, chain.
Check for live to dead load hangup.
Ground problem in MC3. Make sure green ground wire is tight on Merrick board.
Make sure 480 is grounded at machine and at plant.

Weight reading erratically.

Check load cells, connections, and cables.
Look for ground loop problem. Unhook shield at Summing Board.

Weight reacts slowly or crazy.

Make sure slots are set between 20 and 60. [If it is 30.20.EX.01 software, and Average Wt. Display is set to Always ON; Turn to Always OFF. (Only use ON if in Batch and windy. Set Average Slot to 10.)]
Make sure register 365 is 0 when load cells are connected.

Bad weight reading. (usually caused by improper calibration, unlevel machine, bad load cell or bad cable)

Check PCAD Diagnostics. Press ACT, DIAG DISPLAY, PCAD DIAG.
Scale Factor should be around 99 for Artech load cells, 62 for Incell load cells (or when Artechs are set up for kg = 218, metric tons = 218302)
LC Output should be around 1.5000mV/V and only the last 2 digits should move.
If this is stable at about 1.5000, then the problem is in the MC3.
Recalibrate the weight amount making sure the LC Output increased when the weight was added.

WARNING: When calibrating, be very certain Cal Weight is on hopper. If Weight Cal is done without the weights on the hopper, the MC3 will become very confused and think that there isn't any difference between Zero and Cal Weight. If it won't recalibrate correctly, you will have to change the Register (See "Can't recalibrate, Scale is unstable" below)

If the LC Output is not stable, less than 1.0000 or greater than 2.0000 then there is a problem with the signal from the machine.
Make sure Load Cell Connector is wired correctly on PCAD board. (not top board)
Unhook each load cell's signal wires (green and white) from the summing board.
The mV signal from each load cell should be between 4.0 and 25.0mV.
If not then check for load cell hangups or unlevel machine.
Any negative signals from load cells are caused by either bad load cells or undue upward stress.
Any 0 reading (or close to 0) means machine is not sitting on load cell.

If the LC Output is 0 or 3.1457, the signal coming into the controller is no good.
Measure green and white wire at MC3. The positive wire (normally green wire) should go to #4 on PCAD connector.
If the signal is good, make sure red, blue, brown, and black wires are hooked up correctly at MC3 and on Summing Board at machine.

Zero weight should be about 5000 lbs. (2200 kg)

Can't recalibrate, Scale is unstable.

Press ACT, DIAG DISPLAY, DIAG SETTINGS, REGISTER EDITOR, ↑ so > 3 shows, then press TAB.
Change af_scale2 to 99. [Press CLR. Type 99. Press ENT, ESC, MAIN.]

BATCH PROBLEMS

Batch will not start.

Make sure Kill Switch on controller is not pushed in.
Make sure hopper weight is above Low Weight and Heel Point.

Batch will not start, but Feeder Running.

Controller is made before 3-15-99 changes, but has new parameters entered. Batch Start should be Rack 1 Input 1 on controllers made before 3-15-99.

Can't access Batch Setpoint in Batch Mode.

Clear Batch Error. Press ACT, CLEAR BATCH.

Inaccurate Batch Total or Batch Total less than counted while running

Set Stable Samples higher for more scale sensitivity. Stable Samples=5 or 8. Press SET, STABILITY PARAMS, ↓. Make sure Stable Span=1 lb.
If it is 30.20.EX.01 software, and Average Wt. Display is set to Always ON; (Only use Always ON if windy and set Average Slot to 7.)
Set Batch Parameter Fill Strategy = 1
Set Totalization Strategy = 1 (or 2 when the totals are not accurate)
Set Average Slots = 7
Make sure Low weight is above heel point by batch amount.
Make sure Batch is set to STANDARD not TIMED. (Press Batch. Bottom left should say STANDARD.)

Stops in the middle of running batch to refill.

Make sure Low Weight is above Heel Point by at least 50 lbs.

Won't auto refill in Batch Mode.

Make sure Low Weight is above Heel Point by at least 50 lbs.

Preact isn't adjusting.

Make sure there is Run Permission. (Start Select switch is set to Manual Batch.)

Batch Total goes to 0 after batch is done.

This happens on 30.20 Krendl Software made summer 2001. If the weight is unstable and the Batch End Time expires, the Batch Total will go to 0. Change Batch End Time higher.(install new software soon)

MANUAL SPD changes to LOCAL 0.0 when batch is started.

Batch Parameter is set to TIMED BATCH, change it to STANDARD BATCH.

Machine stays running after timer times out when running timed batch. (MC3 is turned off and Setpoint Control is in Manual.)

Turn Mode Switch to BATCH.

MC3 locks up between batches.

Problem in DC Power cable if the connector is discolored at the CPU board end or Power Supply end. (Clear connectors on Rev. 9 cable are no good.)
Problem in CPU board when printing. (Rev 7 on CPU is bad communication for printer.

SPEED PROBLEMS (INPUT or OUTPUT)

Analog out does not reach max volts (10voltsDC).

Disconnect load from PCIO board; maybe there is a short in the cable.
Zero and span using potentiometers on PCIO board.
Try another Analog out.

REM ANA signal only goes to 500000 counts. (Occurs while setting up new controller)

B2 and B3 wires are backwards for 401 ABB.
Make sure MC3 is set for 0-10VDC. Check blue jumpers and MC3 output is 10VDC max. Adjust AIN S potentiometer if not 10VDC max.

REM ANA signal can't be adjusted.

Turn the controller off and then turn it back on again.
Make sure Setpoint Switch is set to Controller.
Measure the DC Voltage on controller PCIO board terminals ANA.5 and ANA.6.
If changing dial doesn't affect Rem Ana number on screen, press Rem Ana. Press Rem Ana again, press Rem Ratio, press Rm Serial, Numeric, type in desired lb/min and press ENT. Press ESC, press Main.

FEEDRATE

The FR should constantly vary, but only about 2lb/min. If it doesn't vary at all it is not working. Check the scale stability (S Quality). Press right arrow 2 times. The S Quality should be 60-90% and it will change. If it is below 60%, the scale is unstable and the FR will not be totally accurate. If the FR doesn't change for more than 2 minutes, check the PID parameters.
Press SET, PID PARAMS. Look at the Loss Slots value. If it is above 65, change these parameters.
With the box around Gain, type 72 and press ENT.
Press up arrow. With the box around Loss Slots, type 50 and press ENT.
Press up arrow. With the box around Average Slot, type 50 and press ENT.
Press up arrow 3 times. With the box around Derivative, type 0.9 and press ENT.
Press up arrow. With the box around Integral, type 0.017 and press ENT.
Press ESC, MAIN.
Those parameters change after every refill. The slots will go lower if the S Quality is high, which is good. The slots will go higher if the S Quality is low which is bad. If the slots are 100, then the S Quality is so bad that it doesn't know what the FR is. You must fix the scale to get a better S Quality. See "Weight Problems" above.

Feeder runs slow.

Make sure the feedrate is set for lbs/min and Totals are set for pounds.

Feedrate goes out of tolerance and reacts slowly.

Make sure slots are set between 20 and 60. [Press SET, PID PARAMETERS, ↑ and change Loss Slots to 50. Change Average Slots to 50.

Material runs too slow during fill and gives a low Feedrate when feeding again.

Check Max Frequency on ABB (2008). Ref % should equal output frequency.
Increase Heel Point.
It should learn and adjust itself.
Change Sample Rate – Sample Time =.3

Feedrate goes high or low after refill.

Make sure nobody is on machine.
Lift hitting machine during refill?
Change Feedfact Time to 60. [Press ACT, DIAG DISPLAY, DIAG SETTINGS, REG EDITOR, CLR, 263 ENT, so >263 shows. Then press TAB, CLR, 60 ENT.
Put same amount on Lift each time.
Don't dump lift manually; only at Heel Pt.

Feedrate keeps going higher and higher

Analog Output 1 is set to Feedrate; should be set to SCR Output

Analog Output 1 and Out 2 wiring might be switched; set Out 2 to SCR Output.

ALARM LIGHT ON

If Machine Power Light is not on.

See General Problems below (section "Blocked").

Feedrate is out of tolerance. ("Good" circle is not filled in on screen)

See Feedrate problems above.

Warning Triangle Button on top right of screen.

Press Triangle Button. If any circle is filled in, the problem must be fixed.

If Slow Fill circle is filled in, refill machine and turn Refill Switch to Stop.

Once the problem is fixed and only checkmark(s) remain, press ACK ALL.

PID OFF LIMITS warning means auger speed went to 0 or 100%. Check PID parameters, reboot controller, and make sure FR is set to lb/min. If auger speed is too slow; close slidegate or drop down to 2 augers.

If in Batch Mode, the Batch amount is wrong, it takes to long for batch, or weight is too low.

See Batch Problems above.

Light comes on when machine runs and goes off when machine stops

Rack 1 Output 7 is set to Running on machines wired for Avail I/O 1

Change Rack 1 Output 7 to Avail I/O 1.

GENERAL MC3 CONTROLLER PROBLEMS

Controller won't start machine.

Make sure Stop Button is pulled out.
No Machine Power Light. See Machine Troubleshooting.
Make sure MC3 shows REM ANA on screen and has a number above 2.
Make sure RPER circle is filled in. (See next problem.)
Make sure weight is above Heel Pt in Drum Mode or Low Weight in Batch Mode.

Screen shows "BLOCKED".

RPER circle on bottom right of screen is open.

Plant Computer is not telling machine to run. (No AC Run)

Turn Start Select Switch to "Manual Drum" to run machine.

Or

ABB display on machine has Fault or Alarm.

Augers are jammed or motor is too hot.

Look at ABB display on machine. Top Left shows amperage used. Top center shows % of load. If this number is above 100%, it will shut off. The center big number is speed of motor. Bottom middle must show REM for machine to work automatically. It will show LOC to work auger motor with the ABB keypad. Bottom right will show RUN when it is trying to run. Bottom right will show solid right arrow when going forward, blinking right arrow when waiting to go forward. Left arrow means backwards.

TO RUN AUGER MOTOR MANUALLY

Press LOC/REM button on ABB keypad so LOC shows on bottom of screen.
Press and hold up arrow until 20% shows on right top screen.
Press I button to start auger and press it again to stop auger.
Press left/right arrow button to change direction of auger.

When done running auger manually change back to normal.

Make sure bottom right arrow pointing to right.
Press LOC/REM button until shows "Remote Control".

Or

No Machine Power light.

Check kill switches, limit switch, overloads, fuses, 460Volt power.

FBLK circle on bottom right of screen is closed. Feeder Blocked.

No Machine Power Light or ABB tripped. See RPER above. Also see Electrical Troubleshooting.

Shows "Feeding" but machine is not running.

"Empty Wt" is higher than Weight in hopper. Lower Empty Wt.

Controller will not print.

Make sure Register Editor 435 is set to 1. The controller needs to be rebooted after changing 435.
* Make sure all of the characters and spaces do not have underline until after last character in each line.

Can't find Register Editor or Quick Setup.

Turn Register Access located in Digital Inputs to Always ON.

Can't enter Fill Point above 82.50lbs.

High Weight needs to be set to 1900 pounds. [Press SET, LIMIT SWITCHES, WEIGHT. Type 1900. Press ENT, ESC, MAIN.]

Fill cycle starts erratically.

Disconnect in MC3: each start refill wire coming from machine. Red/White wire and green wire on Refill Switch (or on Rack 1 on machines before #24.)

Won't refill.

Make sure Kill Switch is pulled out.
Make sure screen shows "Filling". If not check controller.
Make sure "Filling" Digital Output is turned on (Rack 1 Out 2).
Make sure "Stop Fill" Digital Input is NOT turned on.
Make sure Auto Refill switch on front of Panel Box is ON.
Make sure Stop Button on back of machine is pulled out.

MC3 starts machine without start signal. (MC3 would turn on machine after refill even though there was no start signal on digital input. If you pressed the stop button, it would start again 5 seconds later.)

Check Digital Inputs for start signal.
Unhook Input cables from PCIO board.
Replace CPU board.

Red alarm light is on only when running.

Orange Machine Power light on?
Kill Switch pushed in?
Triangle alarm in upper right corner of screen?
Refill takes too long?
High or Low Feedrate?

Relay chatters.

Loose wire on hot or neutral.

Screen has black lines going through it.

Make sure cable is plugged in screen and top computer board.

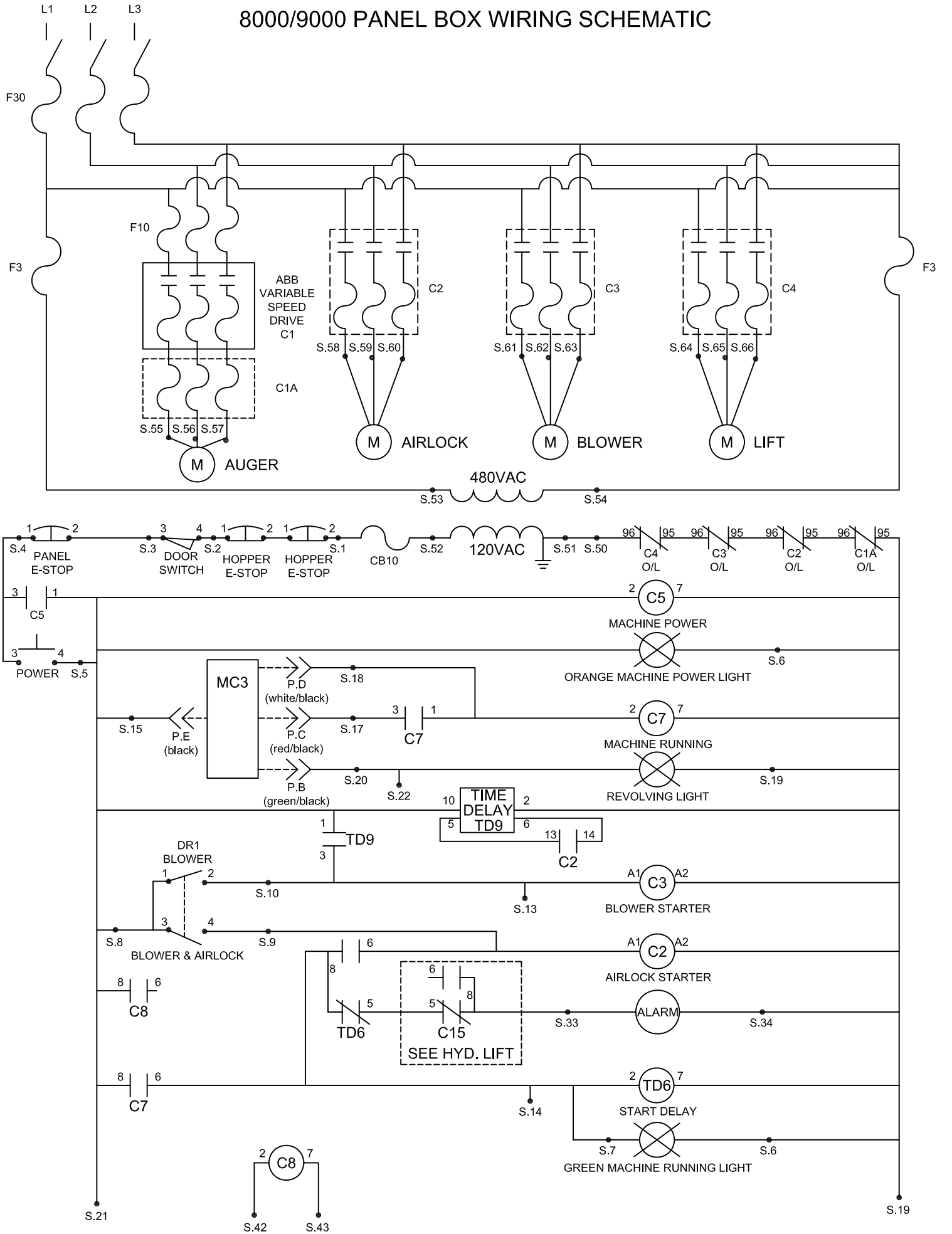
Screen blocks blink (like when programming).

Try turning off for little while.
Try Ram Reset, or replace CPU.

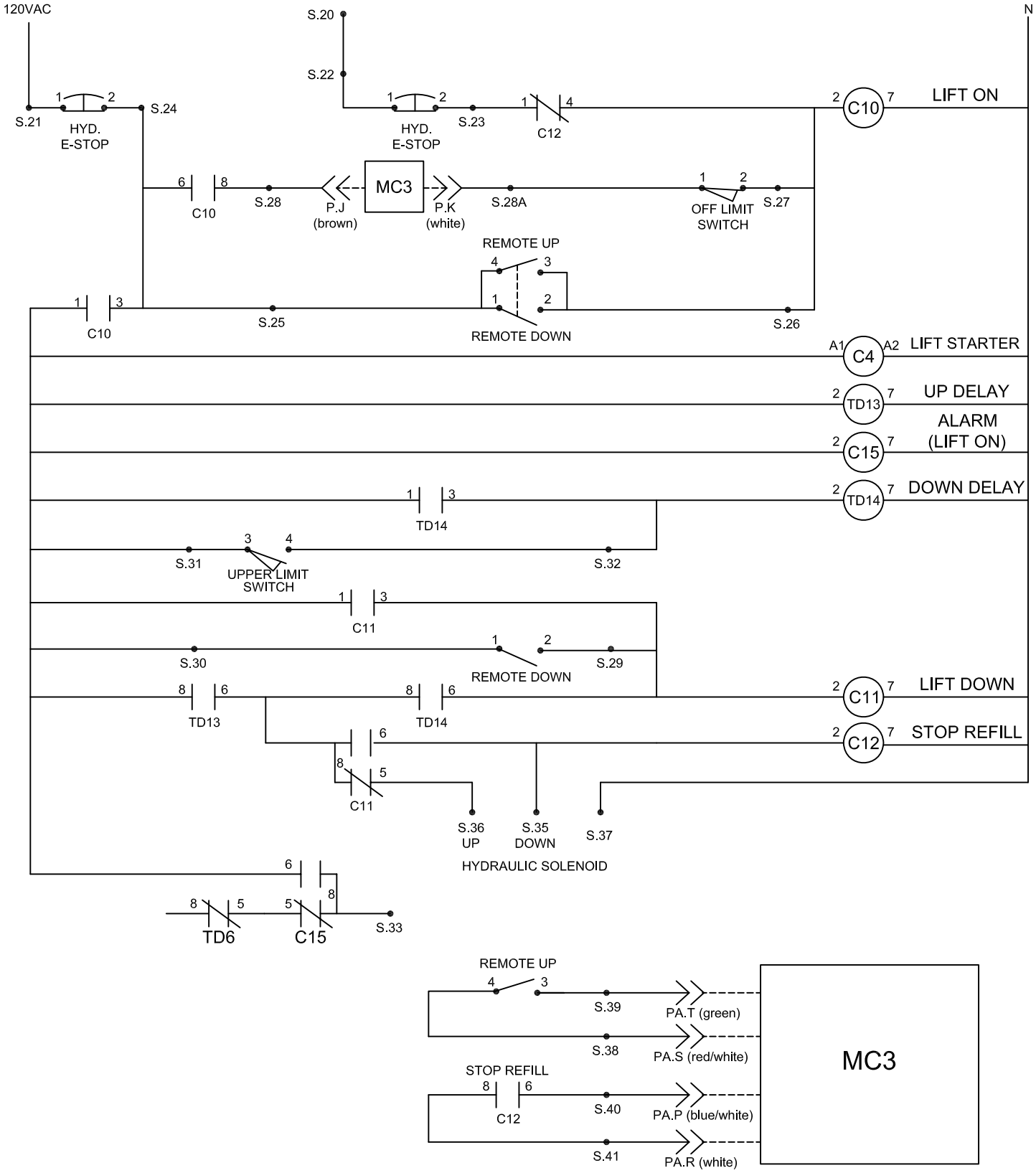
PROBLEM WITH FIBER IN THE MIX.

Verify that Plant Computer is telling fiber machine right amount.
Check FR: lb/min by looking at hopper weight and timing for 1 minute.
Check hopper weight accuracy by placing known weight on hopper.
Is hose/pipe in drum plugged up?
Are there chunks of AC soaked fiber in mix?
Is there right amount of AC going into the mix?
Is there right amount of Dust/Mineral Filler going into the mix?
Is there more dust in aggregates? (Rain will wash dust to the bottom of aggregate pile.)

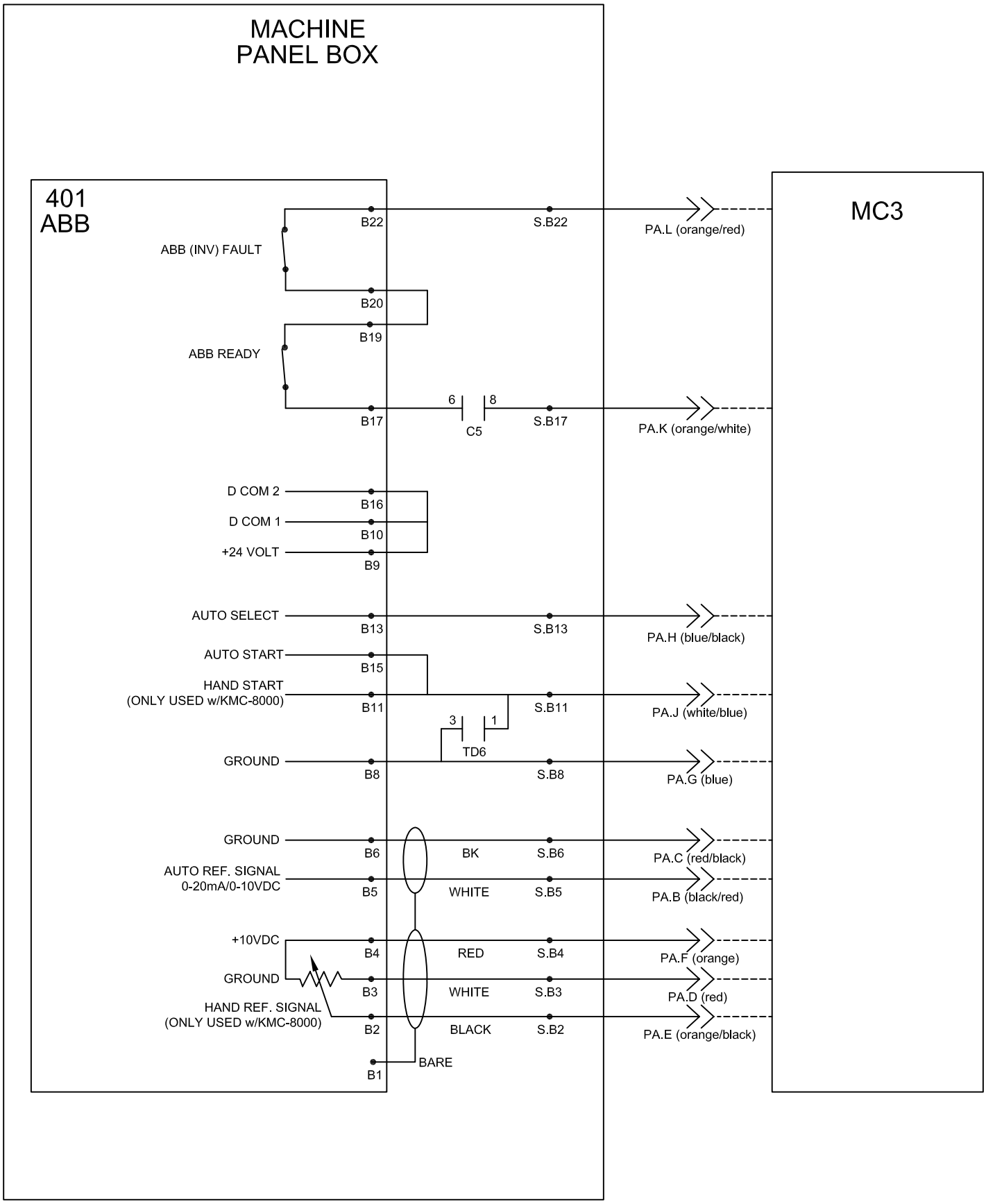
8000/9000 PANEL BOX WIRING SCHEMATIC



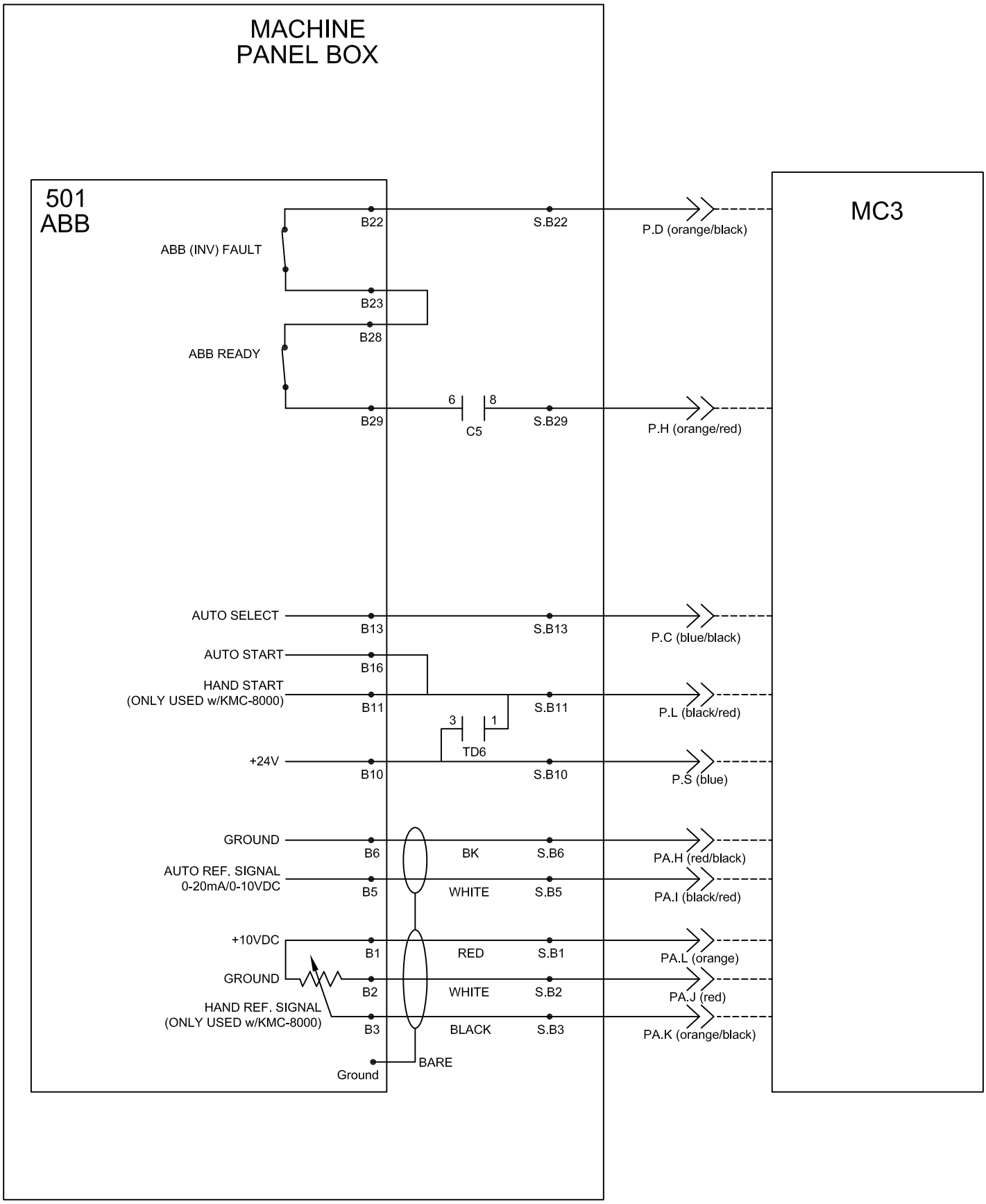
HYDRAULIC LIFT WIRING SCHEMATIC



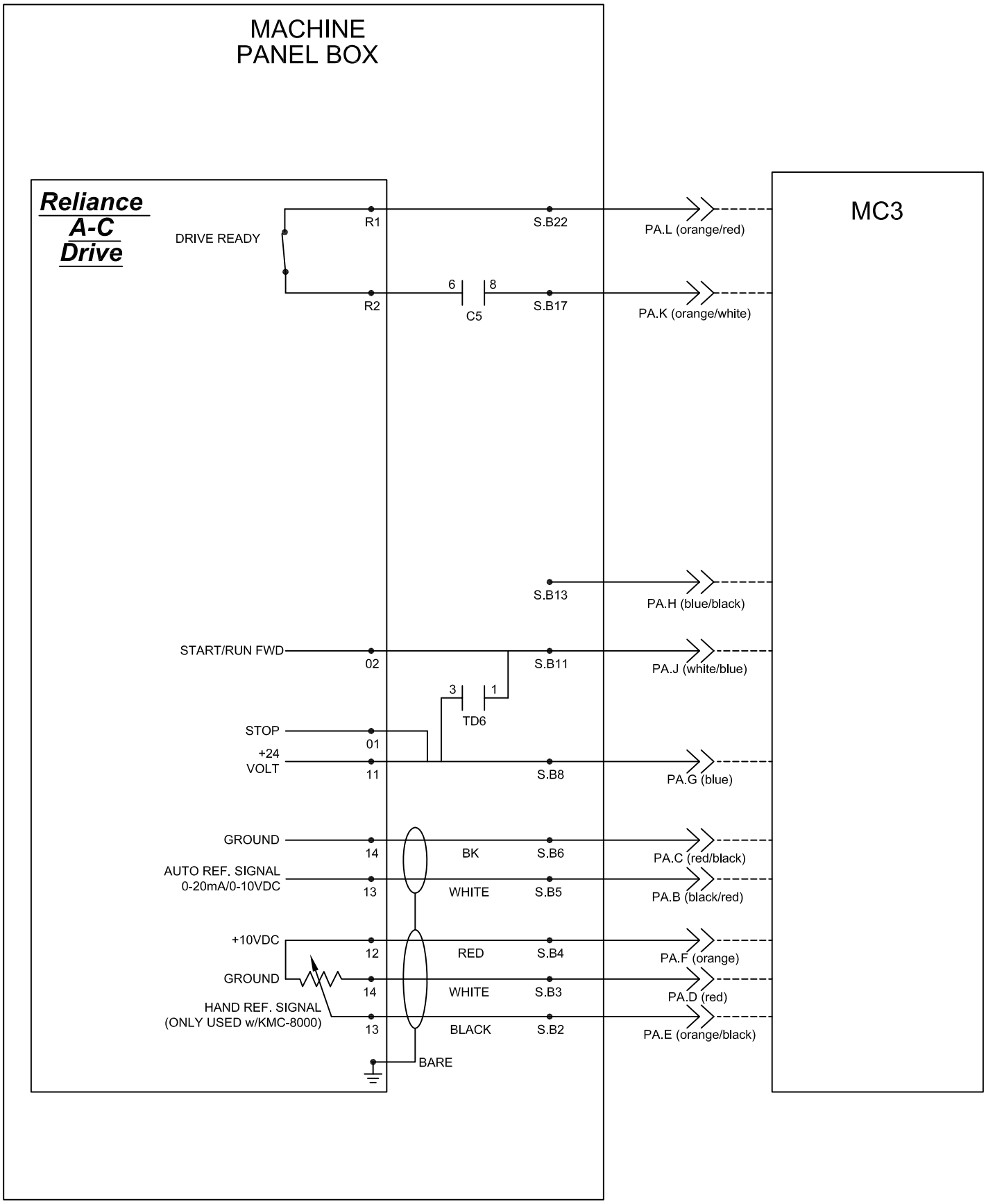
MC3 LOW VOLTAGE CONNECTION TO MACHINE PANEL BOX



MC3 LOW VOLTAGE CONNECTION TO MACHINE PANEL BOX



MC3 LOW VOLTAGE CONNECTION TO MACHINE PANEL BOX



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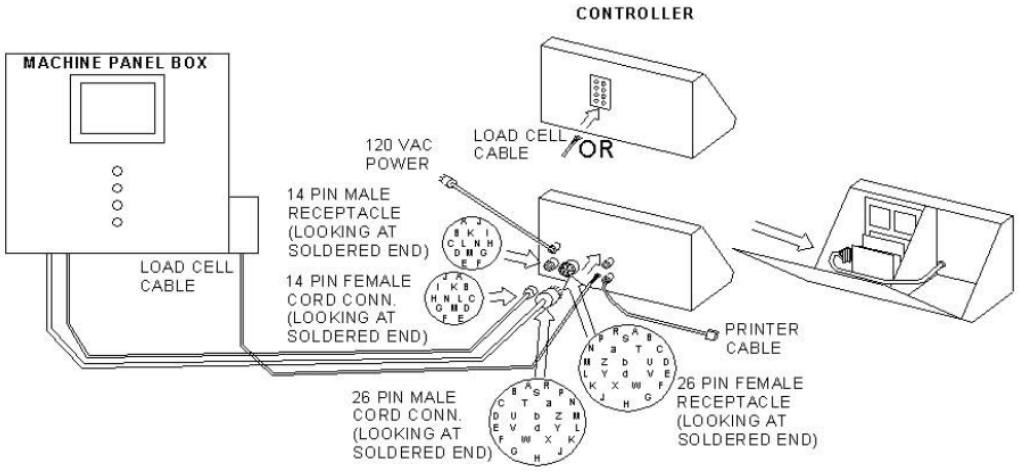
FIBER METERING DEVICE ELECTRICAL

CABLE CONNECTIONS



14 PIN CONNECTORS (120VAC CONTROL CABLE)

PIN	COLOR	USAGE	MACHINE	MC3
P.A	Bare	Shield	S.50	
P.B	Green/Bk	Refill	S.20	RK1.4
P.C	Red/Bk	Stop	S.17	MSL.3
P.D	White/Bk	Start	S.18	RK1.2
P.E	Black	120 Volt+	S.15	R1.2
P.F	Red	120 Volt-	S.19	R1.7
P.G	Yellow	Spare		
P.H	Bk/Yellow	Spare		
P.I	Yellow/Bk	Spare		
	Bare	Shield		
P.J	Brown	Allow Refill	S.28	KSLB.1
P.K	White	Allow Refill	S.28A	KSLB.2
P.L	Blue	Spare		
P.M	Orange	Spare		
P.N	Green	Spare		

LOAD CELL CABLE (wiring inside controller)

COLOR	USAGE	MC3
Bare	Shield	1
Red	+Exc	2
Blue	+Sen	3
Green	+Sig	4
White	-Sig	5
Brown	-Sen	6
Black	-Exc	7

26 PIN CONNECTORS (LOW VOLT CONTROL CABLE)

PIN	COLOR	USAGE	MACHINE	MC3	Rev.8
	Bare	Shield			
PA.B	Bk/Red	+0-10VDC	S.B5	SSLA.1	
PA.C	Red/Bk	-0-10VDC	S.B6	SSLB.1	
PA.A	Bare	Shield		Ground	
PA.D	Red	-POT	S.B3	POT.1	
PA.E	Orange/Bk	VPOT	S.B2		
PA.F	Orange	+POT	S.B4	POT.3	
	Bare	Shield	S.50		
PA.G	G Blue	ABB +24V	S.B8	Wire	RK2.3
PA.H	Blue/Bk	ABB Auto Select	S.B13	Together	
PA.J	White/Blue	ABB Hand Start	S.B11		RK2.4
PA.K	Orange/White	Feeder Bk	S.B17	RK2.21	Spare
PA.L	Orange/Red	Feeder Bk	S.B22	RK2.17	Spare
PA.M	Bk/White	AC Diverter	S.45		
PA.N	White/Red	AC Diverter	S.44		
PA.P	Blue/White	End Refill	S.40	RK1.22	
PA.R	White	End Refill	S.41	RK1.18	
PA.S	Red/White	Start Refill	S.38	RFSR.1	
PA.T	Green	Start Refill	S.39	RFSR.2	
PA.U	Yellow	Spare			
PA.V	Black	Spare			
PA.W	Brown	Spare			
PA.X	Brown/Bk	Spare			
PA.Y	Yellow/Bk	Spare			
PA.Z	Green/Bk	Spare			
PA.a	White/Bk	Spare			
PA.b	Bk/Yellow	Spare			
PA.d	Brown/White	Spare			

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FIBER METERING DEVICE ELECTRICAL

CABLE CONNECTIONS

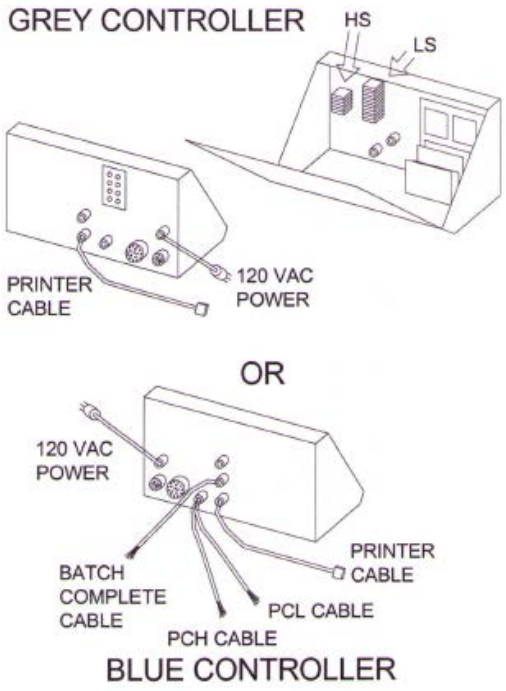
DRUM PLANT COMPUTER CONNECTIONS

1. Plant Production Rate (Tons/Hr) -Interlock

The fiber machine controller can take a plant production signal [0-20 mA, 0-10 VDC, or frequency converted to VDC (an extra signal converter is necessary)] to vary the rate of fiber (setpoint) automatically with plant rate changes. The fiber controller will then automatically adjust the fiber machine speed to inject the fiber at the new rate.

The fiber controller can return a fiber feed rate signal (0-20 mA, 0-10 VDC) to plant computer. It is important that the plant computer does not take this feed rate and adjust the fiber setpoint signal since the fiber controller is already doing this by itself.

This linkage to the plant computer system in the control booth provides a closed loop feedback that increases and decreases flow based on the production rate of the plant.



2. Automatic On/Off- Interlock

120 VAC or dry contact closure from the plant computer (i.e. AC Diverter) can be used to start and stop fiber machine automatically when AC injects.

3. Plant Shutdown - Interlock

The plant can be shut down if there isn't any fiber being injected into the mix. The fiber controller outputs a 120 VAC signal when this condition occurs. This signal can start a time delay before it activates shutdown.

(If you have blue Controller) Connect cables coming out of back of Controller to Plant Computer.
(If you have grey Controller) Connect Plant Computer to terminal strip inside Controller.
PCL = Plant Computer Low Voltage
PCH = Plant Computer High Voltage

BLUE CONTROLLER		GREY CONTROLLER			
CABLE	COLOR	TERMINAL	USAGE	VOLTAGE	TERMINAL PCL
PCL	Green	LS.2	Fiber Feedrate Output	+0-10VDC	ANA.3
PCL	Bk of Green pair	LS.1	Fiber Feedrate Output	-0-10VDC	ANA.4
PCL	Bare	Shield		Ground	
PCL	Red	LS.6	Plant Prod. Rate	+0-10VDC	ANA.1
PCL	Bk of Red pair	LS.5	Plant Prod. Rate	-0-10VDC	ANA.2
PCL	Bare		Shield Grounded at Plant		
PCL	White	LS.8	Auto Start	Dry Contact	R5.3
PCL	Bk of White pair	LS.7	Auto Start	Dry Contact	R5.1
PCL	Bare	Shield			
PCH	Red	HS.6	Plant Shutdown	120VAC	BS.1
PCH	Bk of Red pair	HS.5	Plant Shutdown	120VAC	A.W
PCH	White	HS.4	Auto Start	120VAC	R5.2
PCH	Bk of White pair	HS.3	Auto Start	120VAC	R5.7

Hi-Tech
ASPHALT SOLUTIONS

FIBER METERING DEVICE ELECTRICAL

CABLE CONNECTIONS

BATCH PLANT COMPUTER CONNECTIONS

4. Batch Start

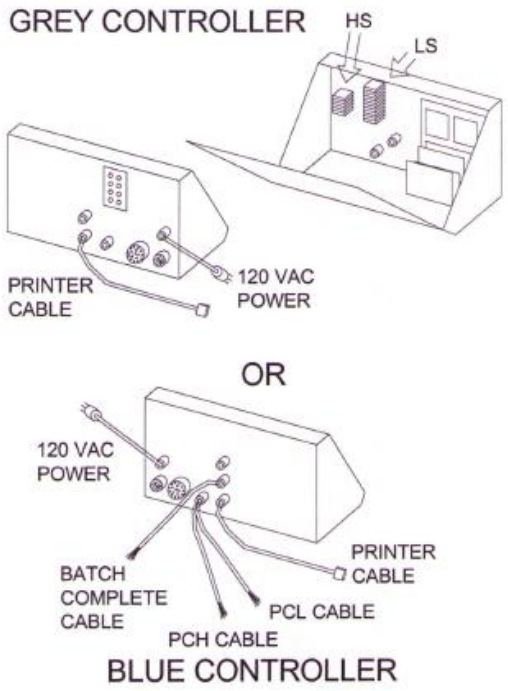
120 VAC from the plant computer (i.e. Agg. Discharge) can be used to start fiber machine automatically when ready for fiber. The machine will run until the correct amount of fiber is injected.

5. Plant Shutdown - Interlock

The plant can be shut down if there isn't any fiber being injected into the mix or it was the incorrect amount of fiber. The fiber controller outputs a 120 VAC signal when this condition occurs.

6. Batch Complete - Interlock

A momentary Dry Contact closure can be used to signal the plant computer that the fiber batch has been blown out of the machine.



(If you have blue Controller) Connect cables coming out of back of Controller to Plant Computer.
(If you have grey Controller) Connect Plant Computer to terminal strip inside Controller.
PCL = Plant Computer Low Voltage
PCH = Plant Computer High Voltage
Batch = Batch Complete

BLUE CONTROLLER		GREY CONTROLLER			
CABLE	**COLOR**	**TERMINAL**	**USAGE**	**VOLTAGE**	**TERMINAL**
PCH	Green	HS.2	Start Batch	120VAC	R3.2
PCH	Bk of Green pair	HS.1	Start Batch	120VAC	R3.10
PCH	Bare		Shield		
PCH	Red	HS.6	Plant Shutdown	120VAC	BS.1
PCH	Bk of Red pair	HS.5	Plant Shutdown	120VAC	A.W
PCH	Bare		Shield		
BATCH	Black	LS.4	Batch Complete	Dry Contact	RK2.2
BATCH	White	LS.3	Batch Complete	Dry Contact	RK2.1

FIBER METERING DEVICE WINTERIZATION

1. Inspect machine for damage, rust, cuts and/or wear
    a. Tarp, cables and hoses
    b. Hopper Auger, Agitators, Screw Augers, Shredders, Airlock
    c. Hydraulic Lift
    d. See# 6a below if major repairs or parts are required.
2. Machine operation
    a. Run machine and check for unusual sounds or vibrations.
    b. Empty machine of unused fiber. Prevents caked on fiber and rust.
    c. Block Output Tube and watch Air Pressure Gauge while Airlock and Blower are running. If below 3.0 psi, the airlock seals will need to be replaced. See# 6a below.
    d. Turn off all power.
3. Clean machine
    a. Remove compacted fiber inside and under machine.
    b. Clean out drain holes under each end of hopper.
    c. Blow air filter clean or replace if necessary.
4. Lubrication
    a. Grease the bearings. (One bearing on each end of each shaft.)
    b. Grease the cylinder pins that have grease zirks.
    c. Clean, lubricate, and tighten the chains.
    d. Check sprocket alignment and wear.
    e. Coat all unpainted shafts with light oil spray or rust inhibitor.
    f. Change hydraulic oil & filter.
    g. Turn on power and run lift. Add oil if motor cavitates. Oil should be about 1" from full when lift is down. (Excess oil will bleed out overflow if it is too full. Allow oil to settle for 1 hour and run lift again.)
5. Storage
    a. Turn off all power.
    b. Remove fiber hose and place in hopper for storage.
    c. Close all doors and strap tarp down. If the tarp has holes in it, put a second tarp over the machine.
    d. Make sure Panel Box is closed tight.
    e. Crank up the load cell lift bolt on each corner of machine as if preparing to ship.
    f. Store controller in a clean dry place. (Prior to start up, controller must be warmed to 50 degrees for 8 hours before powering it up.)
6. Maintenance
    a. If you find anything that needs major repair or replacement, please contact us prior to performing the work.

MC3 PARAMETERS — FOR MACHINES BUILT AFTER 1-3-02 with 30.20.EX.01

Software version: 30.20.EX.01 Jan. 3rd, 2002 (Press MC3 button in upper left corner to see version)

To RAM RESET because controller locks up:
Press upper left corner and upper right corner of screen while turning on controller.

Only change parameters listed below. (Other parameters are not used.)

SET (Press SET. Press 5678. Press ENT.)

Decimal Points		
Weight	0	
Total	0	
Feedrate	1	
Design Capacities		
Design Feedrate	100 lb/min	
Design Weight	2000 lb	

PID Parameters	**Batch**	**Drum**
Gain	60%	72%
Integral	.2 1/s	.017 1/s
Derivative	.90s	.90s
Average Slots	7	50
Loss Slots	50	50

Limit Switches		
Setpoint		
High Setpoint	120 lb/min	
Feedrate		
High Feedrate	120 lb/min	
High Rate Dev	12 lb/min	
Low Rate Dev	12 lb/min	
Weight		
High Weight	3000 lb	

Hopper Parameters		
Auto Fill	0	
Fill Point	1800 lb	
Heel Point	300 lb	
Empty Weight	0 lb	
Fill Time	120 s	
Clean Time	1800 s	
Stability Parameters		
Stable Span	1 lb	
Stable Samples	5	
Max. Flow Span	2 lb/min	
Analog Inputs		
IN1 Zero Level	0	
IN1 Scaling	100 lb/min	
Analog Outputs		
Output 1 SCR Output	0-10V	
Output 2 Feedrate	0-10V	
Output 3 Weight	0-10V	

Press up or down to get parameter in middle. Press TAB to change value. Press INV to get 1 in Rev Column

Digital Inputs	**Physical**	**Rev**
Feeder Block	Rack 2 Input 3	1
Run Permission	Rack 1 Input 2	
Gravametric	Always On	
External Print	Rack 2 Input 1	
Automatic Start	Always Off	
Start Filling	Rack 1 Input 3	
Stop Filling	Rack 1 Input 4	
Stop Feeder	Rack 2 Input 2	1
Start Feeder	Rack 1 Input 1	
Register Access	Always On	
Fuzzy Mode	Always On	
Autotune PID	Always On	
Extended Access	Always On	
Allow Batching	Always On (for Batch Plants)	
	Always Off (for Drum Plants)	
Start a Batch	Rack 2 Input 4	
Stop a Batch	Rack 2 Input 2	1
Clear a Batch	Rack 2 Input 2	1
Uses Stable or Tmd	Always On	
Average Wt. Display	Always Off	
Available I/O 1	Rack 2 Input 3	1

Digital Outputs		**Logical**	**Rev**
Rack 1 Output	1	Running	
	2	Filling	
	3	Good Feedrate	1
	4	Running	
	5	Batch Running	1
	6	Batch Error	
	7	Available I/O 1	
Rack 2 Output	1	Batch Done, Timed	
	2	Running	
	3	Batch Done, Timed	
	4	Filling	1
	5	Batch Running	1
	6	Low Weight	
	7	Batch Done, Timed	

Comm Parameters			
Comm 2	4800	Baud	
Display Parameters			
Display Numeric			
	Backlight Off		50000s

MAIN

MC3 PARAMETERS cont.

ACT
Diagnostics Display
Diagnostics Setting (Press 1030 ENT)
Passwords

Calibration	0
Setup	0
Diagnostics	0

Register Editor
Register Editor

R[435]	>ai_print on	1	Press TAB to get ">" on row to change
R[003]	>af_scale2	99	

ESC
BACK
BACK
Print
Edit Strings

Type in letters at the corresponding Char. # using the keypad. Use SP when spaces;no NULL.
If there are any "___" in the string before the end, it will not print anything after the "___".
Box around the letters mean it is one key on the keypad, not individual letters.
The buttons in upper left and upper right corners labeled Line actually move the Char. #.

Line 1

Char. #	14	19	20	21	22
Drum Plant	PF4	PF5	\CR	\LF	L2

Line 2

Char. #	10	12	16	20	22	25	35	37	40	47	49	50	51
Setpoint:	PF11	PF14	FR:	PF10	PF14	Subtotal:	PF3	PF15	Total:	PF2	PF15	\CR	\LF

Line 3

Char. #	15	20	25	40	42	43	44	45
Batch Plant	PF4	PF5	Hopper Weight:	PF9	PF15	\CR	\LF	L4

Line 4

Char. #	10	12	16	29	31	34	44	46	49	56	58	59	60
Setpoint:	BSPT	PF15	Batch Total:	BTOT	PF15	Subtotal:	PF3	PF15	Total:	PF2	PF15	\CR	\LF

ESC
RETURN
MAIN
LOCAL
Press **LOCAL** one more time so REM ANA shows.
MAIN
Press the space to the right of REM ANA.
Press "Running" so "Standard" shows.

Batch Parameters	**Batch**	**Drum**
Total Strat	1	2
Fill Strat	1	
Preact Adapt	50%	
Preact Delta	5	
Preact Absolute	15	
Preact	7	
Max Time	45s	
Max Error	30%	
Start Batch Time	3	
End Batch Time	12	

ESC
MAIN
ACT
Diagnostic Display
PCAD Diagnostics

Record these values for future reference.
Zero Weight:_____lbs
Scale Factor:_____

MC3 PARAMETERS in *METRIC*

SET

UNITS SELECT

kg kg kg/min

Design Capacities

Design Feedrate	45.4 kg
Design Weight	908 kg

Limit Switches

Setpoint

High Setpoint	54.5 kg/min

Feedrate

High Feedrate	54.5 kg/min
High Rate Dev	5.4 kg/min
Low Rate Dev	5.4 kg/min

Weight

High Weight	1362 kg

Hopper Parameters

Fill Point	817 kg
Heel Point	130 kg

Stability Parameters

Stable Span	.4 kg
Max. Flow Span	.9 lb/min

Analog Inputs

IN1 Scaling	45.4 kg/min

MC3 PARAMETERS

FOR MACHINES BUILT BEFORE 1-3-02 with 30.20.EX.Z6 or earlier

Software version: 30.20.EX.Z6 or earlier (Press MC3 button in upper left corner to see version)

To RAM RESET because controller locks up:
Press upper left corner and upper right corner of screen while turning on controller.

Only change parameters listed below. (Other parameters are not used.)

SET (Press SET. Press 5678. Press ENT.)

Decimal Points	
Weight	0
Total	0
Feedrate	1
Design Capacities	
Design Feedrate	100 lb/min
Design Weight	2000 lb
PID Parameters	
Gain	72%
Integral	.017 1/s
Derivative	.90s
Average Slots	50
Loss Slots	50
Limit Switches	
Setpoint	
High Setpoint	120 lb/min
Feedrate	
High Feedrate	120 lb/min
High Rate Dev	12 lb/min
Low Rate Dev	12 lb/min
Weight	
High Weight	3000 lb
Hopper Parameters	
Auto Fill	0
Fill Point	1800 lb
Heel Point	300 lb
Empty Weight	0 lb
Fill Time	120 s
Clean Time	1800 s
Stability Parameters	
Stable Span	1 lb
Stable Samples	5
Max. Flow Span	2 lb/min
Analog Inputs	
IN1 Zero Level	0
IN1 Scaling	100 lb/min
Analog Outputs	
Output 1 SCR Output	0-10V
Output 2 Feedrate	0-10V
Output 3 Weight	0-10V

Shaded values are differences of machines before 1-3-02

Press up or down to get parameter in middle. Press TAB to change value. Press INV to get 1 in Rev Column

Digital Inputs	**Physical**	**Rev**
Feeder Block	Always Off	
Run Permission	Rack 1 Input 2	
Gravametric	Always On	
External Print	Rack 2 Input 1	
Automatic Start	Always Off	
Start Filling	Rack 1 Input 3	
Stop Filling	Rack 1 Input 4	
Stop Feeder	Rack 2 Input 2	1
Start Feeder	Rack 1 Input 1	
Register Access	Always On	
Extended Access	Always On	
Allow Batching	Rack 2 Input 3	
Start a Batch	Rack 2 Input 4	
Stop a Batch	Rack 2 Input 2	1
Clear a Batch	Rack 2 Input 2	1

Digital Outputs		**Logical**	**Rev**
Rack 1 Output	1	Running	
	2	Filling	
	3	Good Feedrate	1
	4	Running	
	5	Batch Running	1
	6	Batch Error	
	7	Running	
Rack 2 Output	1	Batch Complete	
	2	Batch Running	
	3	Low Weight	
	4	Filling	1
	5	Batch Running	1
	6	Low Weight	
	7	Batch Complete	

Comm Parameters		
Comm 2	4800	Baud
Display Parameters		
Display Numeric		
Backlight Off		50000s

MAIN

MC3 PARAMETERS FOR MACHINES BUILT BEFORE 1-3-02 upgraded to 30.20.EX.01

Software version: 30.20.EX.01 Jan. 3rd, 2002 (Press MC3 button in upper left corner to see version)

To RAM RESET because controller locks up:
Press upper left corner and upper right corner of screen while turning on controller.

Only change parameters listed below. (Other parameters are not used.)

SET (Press SET. Press 5678. Press ENT.)

Decimal Points		
	Weight	0
	Total	0
	Feedrate	1
Design Capacities		
	Design Feedrate	100 lb/min
	Design Weight	2000 lb

PID Parameters	**Batch**	**Drum**
Gain	60%	72%
Integral	.2 1/s	.017 1/s
Derivative	.90s	.90s
Average Slots	10	50
Loss Slots	50	50

Limit Switches		
Setpoint		
	High Setpoint	120 lb/min
Feedrate		
	High Feedrate	120 lb/min
	High Rate Dev	12 lb/min
	Low Rate Dev	12 lb/min
Weight		
	High Weight	3000 lb
Hopper Parameters		
	Auto Fill	0
	Fill Point	1800 lb
	Heel Point	300 lb
	Empty Weight	0 lb
	Fill Time	120 s
	Clean Time	1800 s
Stability Parameters		
	Stable Span	1 lb
	Stable Samples	5
	Max. Flow Span	2 lb/min
Analog Inputs		
	IN1 Zero Level	0
	IN1 Scaling	100 lb/min
Analog Outputs		
	Output 1 SCR Output	0-10V
	Output 2 Feedrate	0-10V
	Output 3 Weight	0-10V

Shaded values are differences of machines before 1-3-02
Press up or down to get parameter in middle. Press TAB to change value. Press INV to get 1 in Rev Column

Digital Inputs	**Physical**	**Rev**
Feeder Block	Always Off	
Run Permission	Rack 1 Input 2	
Gravametric	Always On	
External Print	Rack 2 Input 1	
Automatic Start	Always Off	
Start Filling	Rack 1 Input 3	
Stop Filling	Rack 1 Input 4	
Stop Feeder	Rack 2 Input 2	1
Start Feeder	Rack 1 Input 1	
Register Access	Always On	
Extended Access	Always On	
Allow Batching	Rack 2 Input 3	
Start a Batch	Rack 2 Input 4	
Stop a Batch	Rack 2 Input 2	1
Clear a Batch	Rack 2 Input 2	1
Uses Stable or Tmd	Rack 2 Input 3	
Average Wt. Display	Always Off	
Available I/O 1	Always Off	

Digital Outputs		**Logical**	**Rev**
Rack 1 Output	1	Running	
	2	Filling	
	3	Good Feedrate	1
	4	Running	
	5	Batch Running	1
	6	Batch Error	
	7	Running	
Rack 2 Output	1	Batch Done, Timed	
	2	Batch Running	
	3	Low Weight	
	4	Filling	1
	5	Batch Running	1
	6	Low Weight	
	7	Batch Done, Timed	

Comm Parameters			
	Comm 2	4800	Baud
Display Parameters			
Display Numeric			
	Backlight Off		50000s

MAIN