EPROM A-33	EPROM A-34	EPROM A-35	EPROM A-36
FFFFF	APPLICATION PROGRAM		
DEBUGGER	QUIK LOAD		
F0000	J F010 0 cr		
EFFFF	Q cr		
Down Codes RTE-86	C0000 DFFFF	A0000 BFFFF	80000 9FFFF
E0000			

RAM 5FFFF	RAM 57FFF	RAM 4FFFF	RAM 47FFF
BANK '5'		BANK '4'	
58000	50000	48000	40000

RAM 3FFFF	RAM 37FFF	RAM 2FFFF	RAM 27FFF
BANK '3''		BANK '2'	
38000	30000	28000	20000

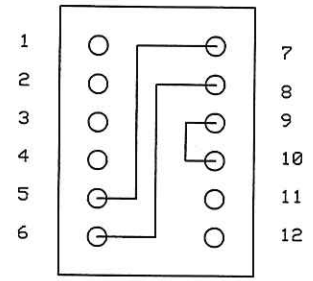
RAM 18FFF	RAM 17FFF	RAM 0FFFF	RAM 07FFF
BANK '1'		BANK '0'	
18000	10000	08000	00000

Remove all current wire wraps on JP49

Install wire wraps on JP49 pins 5 to pin7

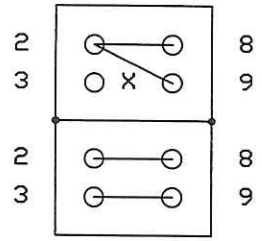
Install wire wraps on JP49 pins 6 to 8

Install wire wraps on JP49 pins9 to pin 10



JP49

JP37 Remove wire from JP37 pin 2 to pin 9



Install wire from JP37 pin 3 to pin 9

SWORD Electronics LLC		
GMACC Memory Addressing		
Designer's name	Rev 1.0 5/9/2017	Page # or name

GMACC Display Tester/Exerciser

1. Connect test device to display at power terminal P2 on the display board. The red wire will connect to 5VDC and the black wire will connect to GND. Plug the tester power supply into 120 VAC.

2. Check the voltage on capacitor C27 at the bottom of the display board. Voltage should be between 52-58 VDC. If voltage is outside this range, the board is non-repairable due to obsolete parts and should be discarded.

3. Observe the display for brightness. If the display is on, but too dim to be considered useful, the board is non-repairable due to obsolete parts and should be discarded.

4. If both of the above conditions are acceptable, unplug the test device power supply from 120 V outlet. Connect the ribbon cable from the test device to the display board at terminal P2. Reconnect the test device power supply to 120 V service to begin exercise routine.

5. Both lines should display the same characters as the program scrolls though the entire character set. Observe the display as the program cycles through the characters and note missing cells that don't light. Evaluate the importance of any missing cells based on how that area of the display is used when in operation. If we are not displaying critical information in the missing cells, we should keep the board as a spare due to obsolescence. If the board is missing too many cells for usefulness, the board is non-repairable due to obsolete parts and should be discarded.

6. If the board exhibits any other malfunction, fails to run the exercise program, or the display does not light at all, return the board to John Lynch to determine if it is repairable.

GE&MT, ADVANCED MACHINE TECHNOLOGY, TIRE ASSEMBLY CONTROLS

The Goodyear Tire & Rubber Co.

G3-89 GMACC Replacement

Table of Contents

GMACC Replacement

Overview

This document covers the GMACC replacement system developed for G3-89 TBMs. There are 2 versions of the system:

1. Replacement for a G3-89 with the original Honeywell and Prolog STD hardware.
2. Replacement for a G3-89 with the original Honeywell and Prolog STD hardware for the A-side and the upgraded B-side control system.

The GMACC communicated serially to the Honeywell and STD systems to provided the following functions:

1. Security Logon for the STD systems [Card Reader]
2. Builder Sign-on to the TBM.
3. Code Change and Schedule.
4. MHH component Put-in-use.
5. Add component quantity.
6. Material Calls.
7. Spec Upload from STD and Honeywell systems to Lv2.
8. Spec Download from Lv2 to the STD and Honeywell systems
9. Machine Alarming.
10. Optional Tire Barcode reader interface.
11. Production logging.
12. Downtime entry.
13. Honeywell configuration bits.

The replacement system provides these functions via RDI Transactions or Web pages.

REQUIRED HARDWARE

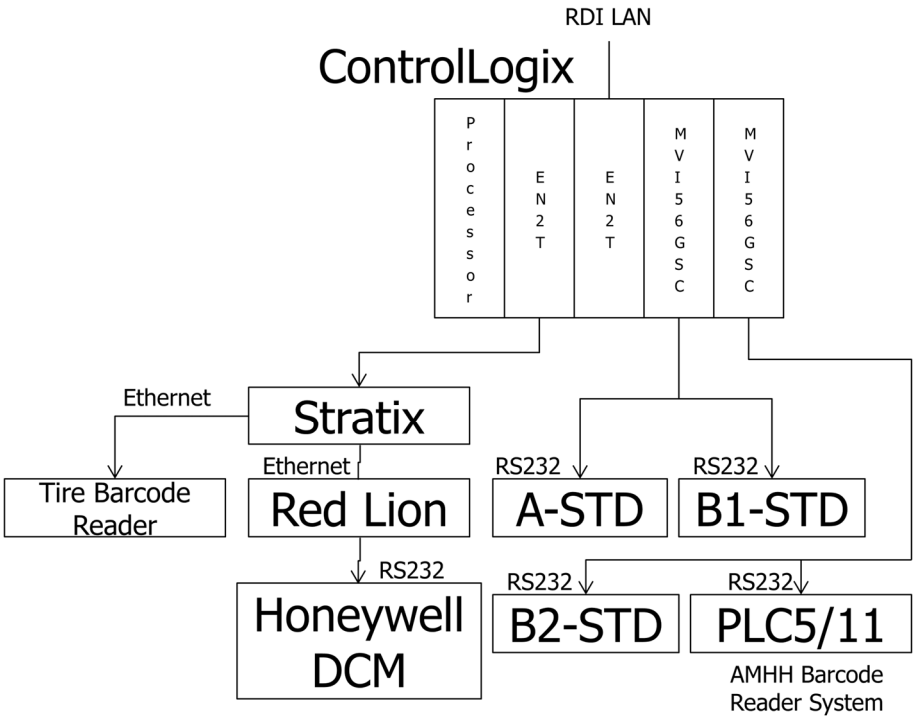
The following lists the required hardware for the 2 solutions.

ORIGINAL CONTROL SYSTEM

Add a ControlLogix system to the TBM. Connect serially to the 3 STD systems via Prosoft Technology modules. Connect to the Honeywell via the Red Lion gateway.

Item	**MFG**	**Cat. Number**	**Qnty**
ControlLogix Rack	AB	1756-Axx [require 5 slots]	1
ControlLogix Power Supply	AB	1756-Pxxx	1
Processor	AB	1756-L62 [min.. Require 4 MB memory]	1
Ethernet Modules	AB	1756-EN2T	2
Serial Modules	Prosoft Technology	MVI56E-GSC	2
Ethernet IP / Serial Gateway	Red Lion		1
Ethernet Switch	AB	Stratix	1

Original Control System

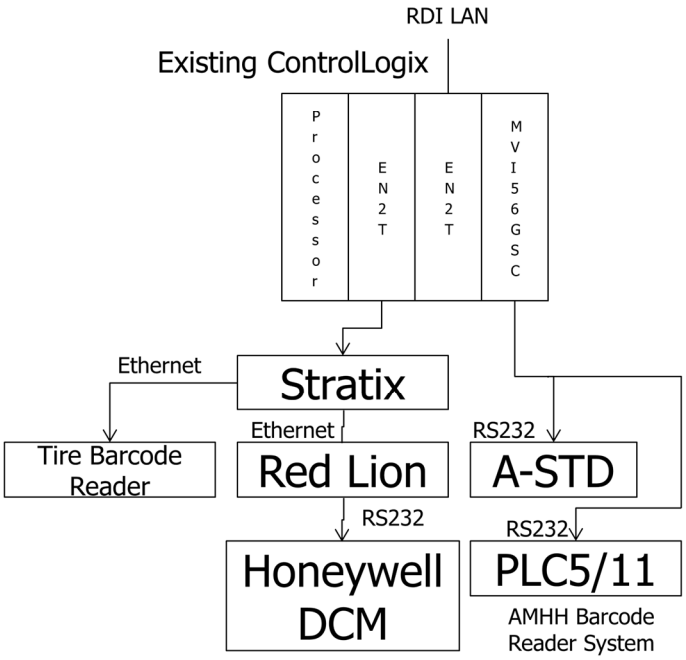


UPGRADED B-SIDE SYSTEM

Add a Prosoft Technology MVI56-GSC module to the existing B-side ControlLogix rack. Add a Red Lion if does not exist. Add GMACC software to Data Processor.

Serial Module	Prosoft Technology	MVI56E-GSC	1
Ethernet IP / Serial Gateway	Red Lion		1

B-side Upgraded System



FUNCTION PROVIDER

Item	Function	Provider
1.	Security Logon for the STD systems [Card Reader]	Authentication Service / ControlLogix
2.	Builder Sign-on to the TBM.	Authentication Service / ControlLogix
3.	Code Change and Schedule.	ControlLogix / RDI
4.	MHH component Put-in-use.	ControlLogix / RDI
5.	Add component quantity.	Web / Lv2
6.	Material Calls.	Web / Lv2

7.	Spec Upload from STD and Honeywell systems to Lv2.	ControlLogix / RDI
8.	Spec Download from Lv2 to the STD and Honeywell systems	ControlLogix / RDI
9.	Machine Alarming.	ControlLogix / Web Services
10.	Optional Tire Barcode reader interface.	ControlLogix
11.	Production logging.	ControlLogix / RDI
12.	Downtime entry.	ControlLogix / RDI / Web Services
13.	Honeywell configuration bits.	ControlLogix / Data Console HMI

SOFTWARE ORGANIZATION

GMACC replacement software is organized into 1 program in a periodic Task to handle the alarms and 10 Programs in the Continuous Task.

Periodic Task	**AlarmHandler**	10 second period to hold alarms high long enough to be sent to Lv2.
Program	Alarms	
Routine	Alarms	Clears the active alarms when the Periodic Task runs.

Continuous Task	**MainTask**	
Program	Initialization	
Routine	MainRoutine	Initializes:

		CRCTable used by the STD communication routines. Prosoft port assignments Sets the STD System identifiers Offsets into and Data lengths for MCHData and GTCData
Routine	MHH_FaultCodes	Initializes the literal strings displayed when an error is returned from the PutInUse RDI Transaction
Routine	MHH_Initilize	Initializes the MHH data structure
Routine	MHH_Initilize_Status	Initializes Feed Point component status on PLC Startup

Continuous Task	**MainTask**	
Program	Prosoft_Interface	
Routine	Prosoft	Contains the AOIs that interface to the GSC modules. One AOI per GSC module.

Continuous Task	**MainTask**	

Program	HW_IPC_RedLion_Interface	Interface between ControlLogix and IPC Honeywell Processor.
Routine	MainRoutine	Calls Product Log Routines Provides direct editing of Honeywell Parameter data . Handles the Spec Upload and Download the Honeywell. Handles the End-of-shift log.
Routines	BOT1PLog, BOT2Plog, Drum1Plog, and Drum2Plog	Product Log handlers for the different drums.
Routine	IPC_Inputs	Map file for IPC Inputs.
Routine	IPC_Outputs	Map file for IPC Outputs.
Routine	IPC_Spec_Download	Spec Download Handler.
Routine	IPC_Spec_Upload	Spec Upload Handler.
Routine	ShiftLogAndReset	End-of-shift Log handler and Sends Shift Reset signal to Honeywell.

Continuous Task	**MainTask**	

Program	STD_A_Pro1_Interface, STD_B1_Pro1_Interface, and STD_B2_Pro1_Interface	Interface between ControlLogix and STD Systems
Routine	MainRoutine	Call Parser. Handle Security Login and timeouts. Initiate Spec Download and Upload from/to STD system
Routines	A_SystemAlarms, B1_SystemAlarms, and B2_SystemAlarms	Decode alarms strings from STD systems and convert into Alarm bits for HMI Enhanced Alarm logger.
Routine	CheckSecurity	Respond to STD Security Login requests and initiates Wait for Login via Authentication Service.
Routine	Parser	Decode serial messages from STD systems and route to appropriate routine.
Routine	SendCardReadData	Encode security level from Authentication service into Card Security message and trigger transmission to STD system.
Routine	SendCardReadTimeout	Encode a Card Read Timeout message and

		trigger transmission to STD system.

Routine	SpecDownload	Convert GTCData into serial messages and transmit to STD systems. GTCData is sent in 5 blocks.
Routine	SpecUpload	Receive 5 blocks of Spec data and convert into GTCData.

Continuous Task	**MainTask**	
Program	Lv2_RDI_Interface	Standard RDI Transactions.
Program	VB_Interface	Interface for DataConsole
Program	Logging	Detect GTCData, MCHData, BMPData changes and generate Parameter Edit RDI Transactions. Handle Honeywell initiated downtime. Interface with Sick Barcode reader - Tire Barcode

Continuous Task	**MainTask**	
Program	AMHH	MHH Control and Status. Manual NIPT Entry

		Optional interface with Automatic MHH Barcode reader system
Routine	MainRoutine	Calls MHH_Status. Calls Manual_NIPT_Entry. Heartbeat with Automatic MHH Barcode Readers. Calls parser for Automatic MHH Barcode Reader System.
Routine	Manual_NIPT_Entry	Handles Manual MHH NIPT entry from the Data Console HMI material status page for Stock Put-in-use and verification.
Routine	MHH_Interface	Interface and state machines for MHH system.
Routine	MHH_Status	Drives MHH Status for the Data Console HMI Material page.
Routine	MHH_StatusOnly	Routine used for Bead and SOL material status.
Routine	Parser	Receives and decodes messages from the Automatic

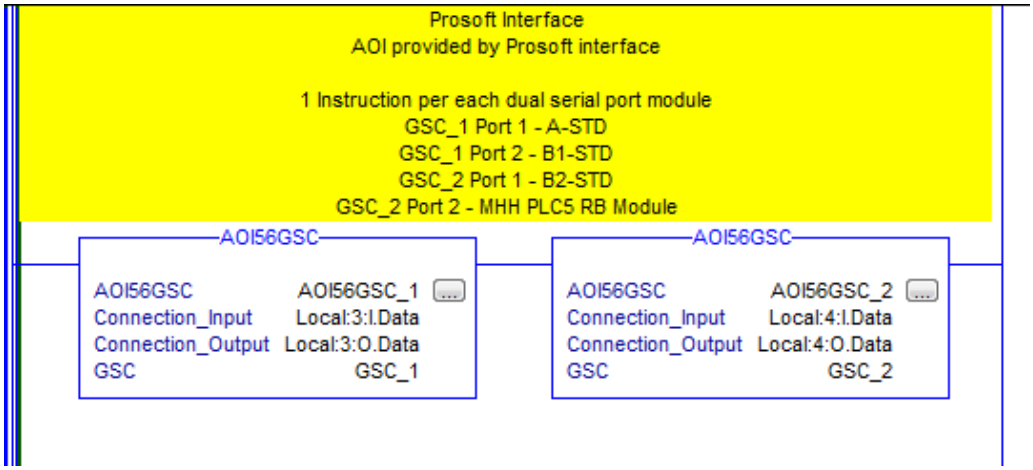
		MHH Barcode Reader system [Napanee].

PROSOFT TECHNOLOGY MVI56-GSC

This is a dual serial port module that communicates between the ControlLogix STD systems and the Automatic MHH Barcode Reader system. G3-89 with the original controls require 2 modules, G3-89 with the B-side upgrade only requires 1 module.

Add-On-Instruction

The AOI handles the interface to the MVI56-GSC modules and a Controller scoped tag, one instruction per module. The Controller scoped tag is used to configure, monitor, receive and transmit serial messages. Tag GSC_1 is used for MVI56-GSC module in Slot 3 and Tag GSC_2 is used for MVI56-GSC module in Slot 4. The STD and AMHH programs each use GSC, an Aliased Program Scoped Tag, to communicate to the associated MVI56-GSC module.



Prosoft MVI56-GSC Port Assignments for Original Control System

Program	Program Scoped Alias Tag	Module and Port
STD_A_Pro1_Interface	GSC	GSC_1.Port1
STD_B1_Pro1_Interface	GSC	GSC_1.Port2
STD_B2_Pro1_Interface	GSC	GSC_2.Port1

AMHH	GSC	GSC_2.Port2

Prosoft MVI56-GSC Port Assignments for B-Side Upgraded Machines

Program	Program Scoped Alias Tag	Module and Port
STD_A_Pro1_Interface	GSC	GSC_1.Port1
AMHH	GSC	GSC_1.Port2

Port configuration for STD systems

GSC_x.CONFIG.Portx.Enabled	1
GSC_x.CONFIG.Portx.Type	1
GSC_x.CONFIG.Portx.Baudrate	9600
GSC_x.CONFIG.Portx.Parity	0
GSC_x.CONFIG.Portx.DataBits	8
GSC_x.CONFIG.Portx.StopBits	1
GSC_x.CONFIG.Portx.RTSOn	1
GSC_x.CONFIG.Portx.RTSOff	1
GSC_x.CONFIG.Portx.Handshaking	3
GSC_x.CONFIG.Portx.RTermCnt	1
GSC_x.CONFIG.Portx.RTermChar	{...}
GSC_x.CONFIG.Portx.RTermChar[0]	16#0d
GSC_x.CONFIG.Portx.RTermChar[1]	16#00
GSC_x.CONFIG.Portx.RTermChar[2]	16#00
GSC_x.CONFIG.Portx.RTermChar[3]	16#00
GSC_x.CONFIG.Portx.RTermChar[4]	16#00

GSC_x.CONFIG.Portx.RTermChar[5]	16#00
GSC_x.CONFIG.Portx.RTermChar[6]	16#00
GSC_x.CONFIG.Portx.RTermChar[7]	16#00
GSC_x.CONFIG.Portx.RTermChar[8]	16#00
GSC_x.CONFIG.Portx.RTermChar[9]	16#00
GSC_x.CONFIG.Portx.RTermChar[10]	16#00
GSC_x.CONFIG.Portx.RTermChar[11]	16#00
GSC_x.CONFIG.Portx.RPacketLen	240
GSC_x.CONFIG.Portx.RTimeout	2000
GSC_x.CONFIG.Portx.RDelay	0
GSC_x.CONFIG.Portx.WTermCnt	0
GSC_x.CONFIG.Portx.WTermChar	{...}
GSC_x.CONFIG.Portx.WTermChar[0]	16#00
GSC_x.CONFIG.Portx.WTermChar[1]	16#00
GSC_x.CONFIG.Portx.WTermChar[2]	16#00
GSC_x.CONFIG.Portx.WTermChar[3]	16#00
GSC_x.CONFIG.Portx.WTermChar[4]	16#00
GSC_x.CONFIG.Portx.WTermChar[5]	16#00
GSC_x.CONFIG.Portx.WTermChar[6]	16#00
GSC_x.CONFIG.Portx.WTermChar[7]	16#00
GSC_x.CONFIG.Portx.WTermChar[8]	16#00
GSC_x.CONFIG.Portx.WTermChar[9]	16#00
GSC_x.CONFIG.Portx.WTermChar[10]	16#00
GSC_x.CONFIG.Portx.WTermChar[11]	16#00

GSC_x.CONFIG.Portx.WPacketLen	0
GSC_x.CONFIG.Portx.WTimeout	500
GSC_x.CONFIG.Portx.WDelay	0
GSC_x.CONFIG.Portx.WMinDelay	0

Port Configuration for Automatic MHH Barcode Reader System

GSC_x.CONFIG.Port2	{...}
GSC_x.CONFIG.Port2.Enabled	1
GSC_x.CONFIG.Port2.Type	1
GSC_x.CONFIG.Port2.Baudrate	9600
GSC_x.CONFIG.Port2.Parity	0
GSC_x.CONFIG.Port2.DataBits	8
GSC_x.CONFIG.Port2.StopBits	1
GSC_x.CONFIG.Port2.RTSOn	1
GSC_x.CONFIG.Port2.RTSOff	1
GSC_x.CONFIG.Port2.Handshaking	3
GSC_x.CONFIG.Port2.RTermCnt	2
GSC_x.CONFIG.Port2.RTermChar	{...}
GSC_x.CONFIG.Port2.RTermChar[0]	16#0a
GSC_x.CONFIG.Port2.RTermChar[1]	16#0d
GSC_x.CONFIG.Port2.RTermChar[2]	16#00
GSC_x.CONFIG.Port2.RTermChar[3]	16#00
GSC_x.CONFIG.Port2.RTermChar[4]	16#00
GSC_x.CONFIG.Port2.RTermChar[5]	16#00

GSC_x.CONFIG.Port2.RTermChar[6]	16#00
GSC_x.CONFIG.Port2.RTermChar[7]	16#00
GSC_x.CONFIG.Port2.RTermChar[8]	16#00
GSC_x.CONFIG.Port2.RTermChar[9]	16#00
GSC_x.CONFIG.Port2.RTermChar[10]	16#00
GSC_x.CONFIG.Port2.RTermChar[11]	16#00
GSC_x.CONFIG.Port2.RPacketLen	240
GSC_x.CONFIG.Port2.RTimeout	2000
GSC_x.CONFIG.Port2.RDelay	0
GSC_x.CONFIG.Port2.WTermCnt	0
GSC_x.CONFIG.Port2.WTermChar	{...}
GSC_x.CONFIG.Port2.WPacketLen	0
GSC_x.CONFIG.Port2.WTimeout	500
GSC_x.CONFIG.Port2.WDelay	0
GSC_x.CONFIG.Port2.WMinDelay	0

DATA ASSIGNMENTS

The GMACC replacement data layout uses spare space from the DPI developed for the Lawton and Napanee B-Side Control System Upgrade. This allows using the same DPI for:

1. Machines with GMACCs and B-side Upgraded Control Systems
2. Machines with Honeywell and STD for A-side and B-side Upgraded Control Systems .
3. Machines with the Original Control systems and the GMACC Replacement.

Additional GTCData Assignments [Napanee]

Machine Section	Parameter	Description
A-STD		
	GTCData[1000]	Collapsed drum #1 diameter
	GTCData[1001]	Expanded drum #1 diameter
	GTCData[1002]	Collapsed drum #2 diameter
	GTCData[1003]	Expanded drum #2 diameter
	GTCData[1004]	Innerliner thickness in.
	GTCData[1005]	Innerliner splice len. in.
	GTCData[1006]	Innerliner wraps, 1 or 2
	GTCData[1007]	Toeguard thickness in.
	GTCData[1008]	Toeguard splice length in.
	GTCData[1009]	Ply #1 wraps, 0,1,or 2
	GTCData[1010]	Ply #1 thickness, in.
	GTCData[1011]	Ply #1 splice length in.
	GTCData[1012]	Ply #2 wraps, 0,1,or 2
	GTCData[1013]	Ply #2 thickness, in.
	GTCData[1014]	Ply #2 splice length in.
	GTCData[1015]	Apex/Wedge thickness in.
	GTCData[1016]	Apex/Wedge splice len. in.
	GTCData[1017]	Sidewall splice length in.
	GTCData[1018]	Bead width in.
	GTCData[1019]	Drum cl to beadset in.
	GTCData[1020]	Tread Stitch in./rev.

	GTCData[1021]	Sidewall Stitch in./rev.
	GTCData[1022]	Tread Stitch Start in.
	GTCData[1023]	Tread Stitch Stop in.
	GTCData[1024]	Sidewall Stitch Start in.
	GTCData[1025]	Sidewall Stitch Stop in.
	GTCData[1026]	Sidewall Stitch Xfer in.
	GTCData[1027]	Innerliner apply RPM
	GTCData[1028]	Toeguard apply RPM
	GTCData[1029]	Ply #1 apply RPM
	GTCData[1030]	Ply #2 apply RPM
	GTCData[1031]	Apex apply RPM
	GTCData[1032]	Sidewall apply RPM
	GTCData[1033]	Sidewall stitch RPM
	GTCData[1034]	Tread stitch RPM
	GTCData[1035]	Toeguard spot pos. hrs.
	GTCData[1036]	Ply 1 spot pos. hrs.
	GTCData[1037]	Ply 2 spot pos. hrs.
	GTCData[1038]	Apex spot pos. hrs.
	GTCData[1039]	Sidewall spot pos. hrs.
	GTCData[1040]	Sidewall view pos. hrs.
	GTCData[1041]	Drum width #1 1st stage
	GTCData[1042]	Drum width #2 bead lock
	GTCData[1043]	Drum width #4 pre-inflate

	GTCData[1044]	Drum width #5 stitch
	GTCData[1045]	Drum width Shape wait
	GTCData[1046]	Drum width Remove tire
	GTCData[1047]	Innerliner Acceleration
	GTCData[1048]	Toeguard Acceleration
	GTCData[1049]	Ply #1 Acceleration
	GTCData[1050]	Ply #2 Acceleration
	GTCData[1051]	Apex Acceleration
	GTCData[1052]	SW Acceleration
	GTCData[1053]	Tread Stitch Transfer
	GTCData[1054]	Tread Stitch Ratio2
	GTCData[1055]	SW Stitch Ratio2
	GTCData[1056]	
	GTCData[1057]	light 1 Pos 1 - IL
	GTCData[1058]	light 1 Pos 2 - TG
	GTCData[1059]	light 1 Pos 3 - P1
	GTCData[1060]	light 1 Pos 4 - P2
	GTCData[1061]	light 1 Pos 5 - Bead Set
	GTCData[1062]	light 2 Pos 1 - Apex
	GTCData[1063]	light 2 Pos 2 - Wedge
	GTCData[1064]	light 2 Pos 3 - Sidewall
	GTCData[1065]	light 2 Pos 4 - Tread
	GTCData[1066]	light 2 Pos 5 - Insert

	GTCData[1067]	Innerliner guide pos.
	GTCData[1068]	Ply 1 guide pos.
	GTCData[1069]	Ply 2 guide pos.
	GTCData[1070]	TG guide set pos.
	GTCData[1071]	White sidewall. guide set
	GTCData[1072]	Black sidewall. guide set
	GTCData[1073]	White sidewall. guide width
	GTCData[1074]	Black sidewall. guide width
	GTCData[1075]	Innerliner pre-guide
	GTCData[1076]	Ply 1 pre-guide width
	GTCData[1077]	Ply 2 pre-guide width

B1-STD		
	GTCData[1100]	BOT expanded drum diam in.
	GTCData[1101]	Drum diam. with breaker 1
	GTCData[1102]	Drum diam. with breaker 2
	GTCData[1103]	Drum diam. with overlay
	GTCData[1104]	Sheet ovly splice in.
	GTCData[1105]	Breaker 1 apply speed RPM
	GTCData[1106]	Breaker 2 apply speed RPM
	GTCData[1107]	Tread apply speed RPM
	GTCData[1108]	Overlay apply speed RPM
	GTCData[1109]	Spot #1 breaker hrs.

	GTCData[1110]	Spot #2 breaker hrs.
	GTCData[1111]	Spot overlay 1 hrs.
	GTCData[1112]	Spot tread hrs.
	GTCData[1113]	Spare
	GTCData[1114]	#1 bkr front guide, mm.
	GTCData[1115]	#1 bkr rear guide, mm.
	GTCData[1116]	#2 bkr front guide, mm.
	GTCData[1117]	#2 bkr rear guide, mm.
	GTCData[1118]	Sheet overlay guide, in.
	GTCData[1119]	Sheet overlay wraps, 0,1,2
	GTCData[1120]	Sheet overlay thick. in.
	GTCData[1121]	Tread length in.
	GTCData[1122]	Overlay shift pos in.
	GTCData[1123]	Spiral applier tack, in.
	GTCData[1124]	Spiral applier cut, in.
	GTCData[1125]	Breaker conv. apply dist.
	GTCData[1126]	Breaker 1 reg. dist. in.
	GTCData[1127]	Breaker 2 reg. dist. in.
	GTCData[1128]	
	GTCData[1129]	
	GTCData[1130]	
	GTCData[1131]	
	GTCData[1132]	

	GTCData[1133]	
	GTCData[1134]	SOL Drum revs Zone 1
	GTCData[1135]	SOL Drum revs Zone 2
	GTCData[1136]	SOL Drum revs Zone 3
	GTCData[1137]	SOL Drum revs Zone 4
	GTCData[1138]	SOL Drum revs Zone 5
	GTCData[1139]	SOL Drum revs Zone 6
	GTCData[1140]	SOL Drum revs Zone 7
	GTCData[1141]	SOL Drum revs Zone 8
	GTCData[1142]	SOL Drum revs Zone 9
	GTCData[1143]	SOL Drum revs Zone 10
	GTCData[1144]	SOL Drum revs Zone 11
	GTCData[1145]	SOL Drum revs Zone 12
	GTCData[1146]	SOL Drum revs Zone 13
	GTCData[1147]	SOL Drum revs Zone 14
	GTCData[1148]	SOL Drum revs Zone 15
	GTCData[1149]	SOL Drum revs Zone 16
	GTCData[1150]	SOL Drum revs Zone 17
	GTCData[1151]	Pitch (MM/REV) Zone 1
	GTCData[1152]	Pitch (MM/REV) Zone 2
	GTCData[1153]	Pitch (MM/REV) Zone 3
	GTCData[1154]	Pitch (MM/REV) Zone 4
	GTCData[1155]	Pitch (MM/REV) Zone 5

	GTCData[1156]	Pitch (MM/REV) Zone 6
	GTCData[1157]	Pitch (MM/REV) Zone 7
	GTCData[1158]	Pitch (MM/REV) Zone 8
	GTCData[1159]	Pitch (MM/REV) Zone 9
	GTCData[1160]	Pitch (MM/REV) Zone 10
	GTCData[1161]	Pitch (MM/REV) Zone 11
	GTCData[1162]	Pitch (MM/REV) Zone 12
	GTCData[1163]	Pitch (MM/REV) Zone 13
	GTCData[1164]	Pitch (MM/REV) Zone 14
	GTCData[1165]	Pitch (MM/REV) Zone 15
	GTCData[1166]	Pitch (MM/REV) Zone 16
	GTCData[1167]	Pitch (MM/REV) Zone 17
	GTCData[1168]	Auto spiral cut. int revs
	GTCData[1169]	Manual spiral revs
	GTCData[1170]	Auto/man spiral slow RPM
	GTCData[1171]	Spiral 1st dwell revs
	GTCData[1172]	Spiral 1st dwell duration
	GTCData[1173]	Spiral 2nd dwell revs
	GTCData[1174]	Spiral 2nd dwell duration
	GTCData[1175]	Spiral 3rd dwell revs
	GTCData[1176]	Spiral 3rd dwell duration

B2-STD		

	GTCData[1200]	BOT expanded drum diameter
	GTCData[1201]	Line light #1 breaker pos.
	GTCData[1202]	Line light #2 breaker pos.
	GTCData[1203]	Line light Tread pos.
	GTCData[1204]	Line light Overlay pos.
	GTCData[1205]	Elevator top position

IPC		
	GTCData[1300]	UPPER DRUM PRE-SHAPE SELECT
	GTCData[1301]	UPPER DRUM FULL SHAPE SELECT
	GTCData[1302]	UPPER DRUM INBOARD TOP BAG
	GTCData[1303]	UPPER DRUM INBOARD BOTTOM BAG
	GTCData[1304]	UPPER DRUM OUTBOARD TOP BAG
	GTCData[1305]	UPPER DRUM OUTBOARD BOTTOM BAG
	GTCData[1306]	UPPER DRUM INBOARD LOW PRES TOP BAG
	GTCData[1307]	UPPER DRUM OUTBOARD LOW PRESS TOP BAG
	GTCData[1308]	LOWER DRUM PRE-SHAPE SELECT
	GTCData[1309]	LOWER DRUM FULL SHAPE SELECT
	GTCData[1310]	LOWER DRUM INBOARD TOP BAG
	GTCData[1311]	LOWER DRUM INBOARD BOTTOM BAG

	GTCData[1312]	LOWER DRUM OUTBOARD TOP BAG
	GTCData[1313]	LOWER DRUM OUTBOARD BOTTOM BAG
	GTCData[1314]	LOW DRUM INBD LOW PRESS TOP BAG
	GTCData[1315]	LOWER DRUM OTBD LOW PRESS TOP BAG
	GTCData[1316]	#1 PLY LETOFF DRIVE
	GTCData[1317]	#2 PLY LETOFF DRIVE
	GTCData[1318]	INNERLINER LETOFF DRIVE
	GTCData[1319]	Spare_4161
	GTCData[1320]	Spare_4162
	GTCData[1321]	APEX RIGHT LETOFF DRIVE
	GTCData[1322]	APEX LEFT LETOFF DRIVE
	GTCData[1323]	RIGHT TOEGUARD LETOFF DRIVE
	GTCData[1324]	LEFT TOEGUARD LETOFF DRIVE
	GTCData[1325]	FRONT BLACK SIDEWALL LETOFF DRIVE
	GTCData[1326]	REAR BLACK SIDEWALL LETOFF DRIVE
	GTCData[1327]	FRONT WHITE SIDEWALL LETOFF DRIVE
	GTCData[1328]	REAR WHITE SIDEWALL LETOFF DRIVE
	GTCData[1329]	Reserved_4171
	GTCData[1330]	#1 PLY LETOFF BRAKES

	GTCData[1331]	#2 PLY LETOFF BRAKES
	GTCData[1332]	INNERLINER LETOFF BRAKES
	GTCData[1333]	Spare_4175
	GTCData[1334]	Spare_4176
	GTCData[1335]	APEX RIGHT LETOFF BRAKES
	GTCData[1336]	APEX LEFT LETOFF BRAKES
	GTCData[1337]	RIGHT TOEGUARD LETOFF BRAKES
	GTCData[1338]	LEFT TOEGUARD LETOFF BRAKES
	GTCData[1339]	FRONT WHITE SIDEWALL LETOFF BRAKES
	GTCData[1340]	REAR WHITE SIDEWALL LETOFF BRAKES
	GTCData[1341]	FRONT BLACK SIDEWALL LETOFF BRAKES
	GTCData[1342]	REAR BLACK SIDEWALL LETOFF BRAKES
	GTCData[1343]	#1 PLY CONVEYOR DRIVE
	GTCData[1344]	#2 PLY CONVEYOR DRIVE
	GTCData[1345]	INNERLINER CONVEYOR DRIVE
	GTCData[1346]	BLACK SIDEWALL CONVEYOR DRIVE
	GTCData[1347]	WHITE SIDEWALL CONVEYOR DRIVE
	GTCData[1348]	
	GTCData[1349]	#1 SIDEWALL STITCHER DWELL
	GTCData[1350]	SIDEWALL FACE STITCHER DWELL
	GTCData[1351]	#1 TREAD STITCHER DWELL

	GTCData[1352]	#2 TREAD STITCHER DWELL
	GTCData[1353]	TREAD FACE STITCHER DWELL
	GTCData[1354]	DRUM TOP TU BAGS INFL HI-P
	GTCData[1355]	DRUM BOTTOM TU BAGS INFLATE
	GTCData[1356]	DRUM BOTTOM TU BAGS DEFLATE
	GTCData[1357]	DRUM TURNUP BAG CYCLE COMPLETE
	GTCData[1358]	Drum Shape Pressure
	GTCData[1359]	#1 TREAD LETOFF DRIVE
	GTCData[1360]	#2 TREAD LETOFF DRIVE
	GTCData[1361]	#1 BREAKER LETOFF DRIVE
	GTCData[1362]	#2 BREAKER LETOFF DRIVE
	GTCData[1363]	OVERLAY (SPIRAL OR SHEET) LETOFF DRIVE
	GTCData[1364]	#1 TREAD LETOFF BRAKES
	GTCData[1365]	#2 TREAD LETOFF BRAKES
	GTCData[1366]	#1 BREAKER LETOFF BRAKES
	GTCData[1367]	#2 BREAKER LETOFF BRAKES
	GTCData[1368]	OVERLAY (SPIRAL OR SHEET) LETOFF BRAKES
	GTCData[1369]	Spare_4259
	GTCData[1370]	#1 SW Stitcher Pressure
	GTCData[1371]	#1 Tread Stitcher Pressure
	GTCData[1372]	SW XRAIL High Pressure
	GTCData[1373]	SW XRAIL Low Pressure

	GTCData[1374]	TREAD XRAIL High Pressure
	GTCData[1375]	TREAD XRAIL Low Pressure
	GTCData[1376]	SW Splice Stitcher Pressure
	GTCData[1377]	SW Jam Stitcher Pressure
	GTCData[1378]	Star Stitcher Timer
	GTCData[1379]	Spare_4269
	GTCData[1380]	Spare_4270
	GTCData[1381]	Spare_4271
	GTCData[1382]	Spare_4272
	GTCData[1383]	Spare_4273
	GTCData[1384]	Spare_4274
	GTCData[1385]	Spare_4275
	GTCData[1386]	Spare_4276
	GTCData[1387]	Spare_4277
	GTCData[1388]	1ST TENSION VALVE
	GTCData[1389]	1ST TENSION REVOLUTION
	GTCData[1390]	2ND TENSION VALUE
	GTCData[1391]	2ND TENSION REVOLUTION
	GTCData[1392]	3RD TENSION VALUE
	GTCData[1393]	3RD TENSION REVOLUTION
	GTCData[1394]	4TH TENSION VALUE
	GTCData[1395]	4TH TENSION REVOLUTION
	GTCData[1396]	5TH TENSION VALUE

	GTCData[1397]	5TH TENSION REVOLUTION
	GTCData[1398]	6TH TENSION VALUE
	GTCData[1399]	6TH TENSION REVOLUTION
	GTCData[1400]	7TH TENSION VALUE
	GTCData[1401]	7TH TENSION REVOLUTION
	GTCData[1402]	8TH TENSION VALUE
	GTCData[1403]	8TH TENSION REVOLUTION
	GTCData[1404]	9TH TENSION VALUE
	GTCData[1405]	9TH TENSION REVOLUTION
	GTCData[1406]	10TH TENSION VALUE
	GTCData[1407]	10TH TENSION REVOLUTION
	GTCData[1408]	
	GTCData[1409]	
	GTCData[1410]	USE #1 PLY APPLIER
	GTCData[1411]	USE #2 PLY APPLIER
	GTCData[1412]	UMBRELLA CONSTRUCTION
	GTCData[1413]	APPLY PLY 2 BEFORE PLY 1
	GTCData[1414]	DISABLE STARWHEEL STICH
	GTCData[1415]	DOUBLE TURN UP BAGS
	GTCData[1416]	DISABLE TOEGUARD APPLICATION
	GTCData[1417]	DISABLE APEX APPLICATION
	GTCData[1418]	Enable Spiral Overlay

MCHData Assignments [Napanee]

	MCHData[1650]	Stn #2 Rotate at Removal
	MCHData[1651]	Enable 18" Tire SW Apply
	MCHData[1652]	Enable Auto Tread Shift
	MCHData[1653]	Modified Turnup at Index
	MCHData[1654]	Enable Long Apex Cut
	MCHData[1655]	Enable #2 Static Stitcher
	MCHData[1656]	Auto MHH Disabled
	MCHData[1657]	Disable Innerliner Inspect PB
	MCHData[1658]	Inflate Turnup at Shape
	MCHData[1659]	Enable SW Splice Stitcher
	MCHData[1660]	Overhead Conveyor Down - Bypass Unloader
	MCHData[1661]	Barcode Applier Down - Bypass Auto Labeler
	MCHData[1662]	MHH Disable Feed Point Timer Preset

HMI DATA CONSOLE

The HMI provides the data management functionality previously provided by the Data Console application. This manual will only provide an overview of the HMI Data Console for this application , refer to the following manuals for more detail on the HMI:

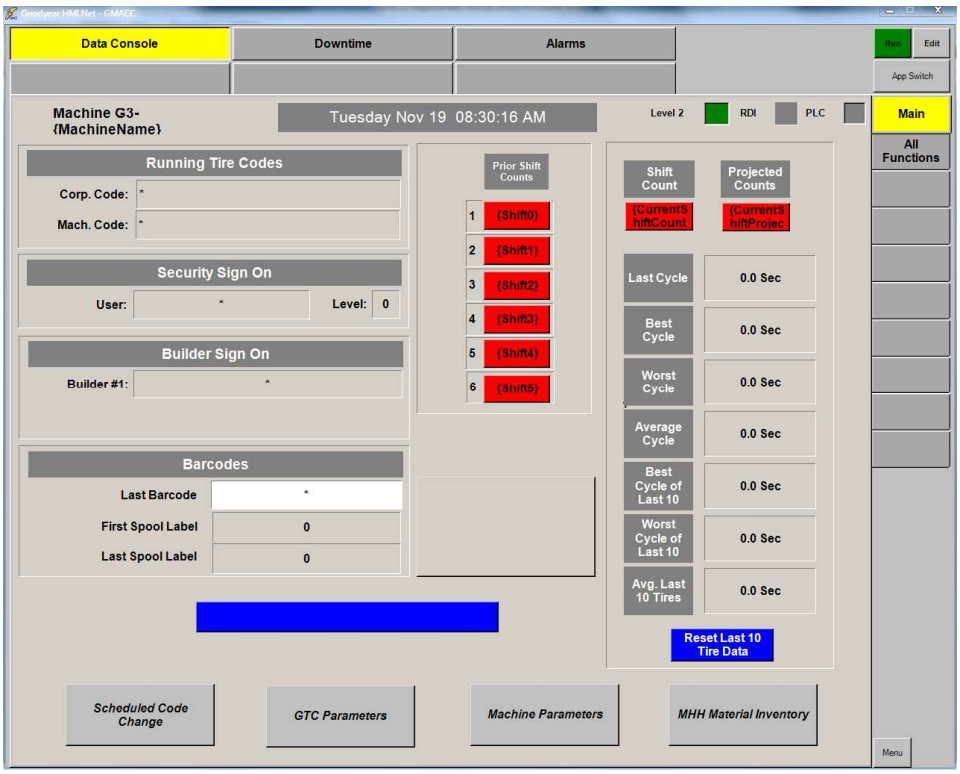
CTI-002-02-00038 - HMI.Net Design Manual

CTI-002-02-00065 - HMI Plugin Manual for Custom Pages

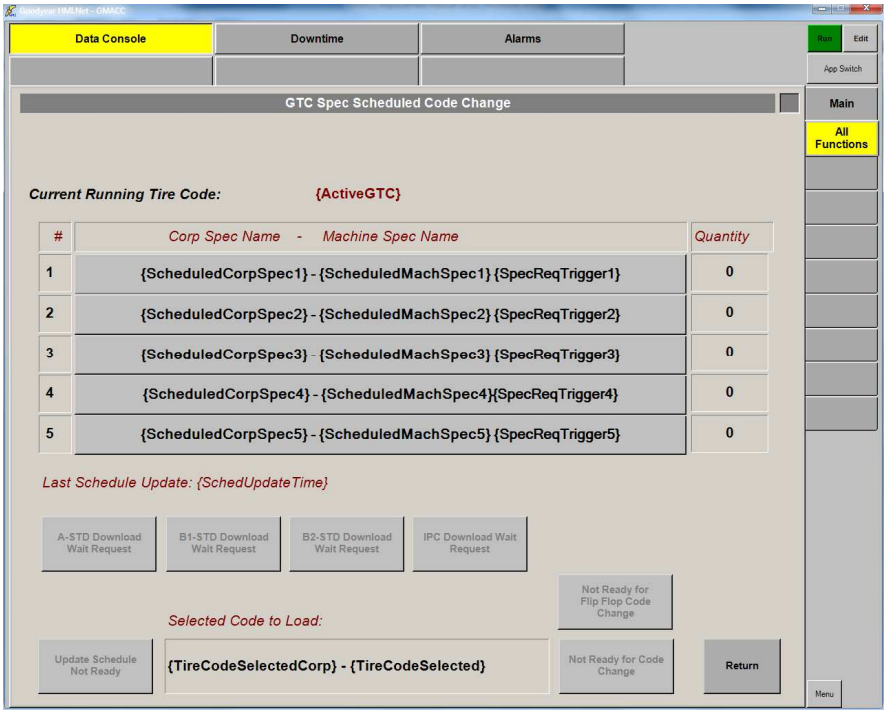
CTI-002-02-00064 - Tire Machine Specification WebEdit Manual

Functions:

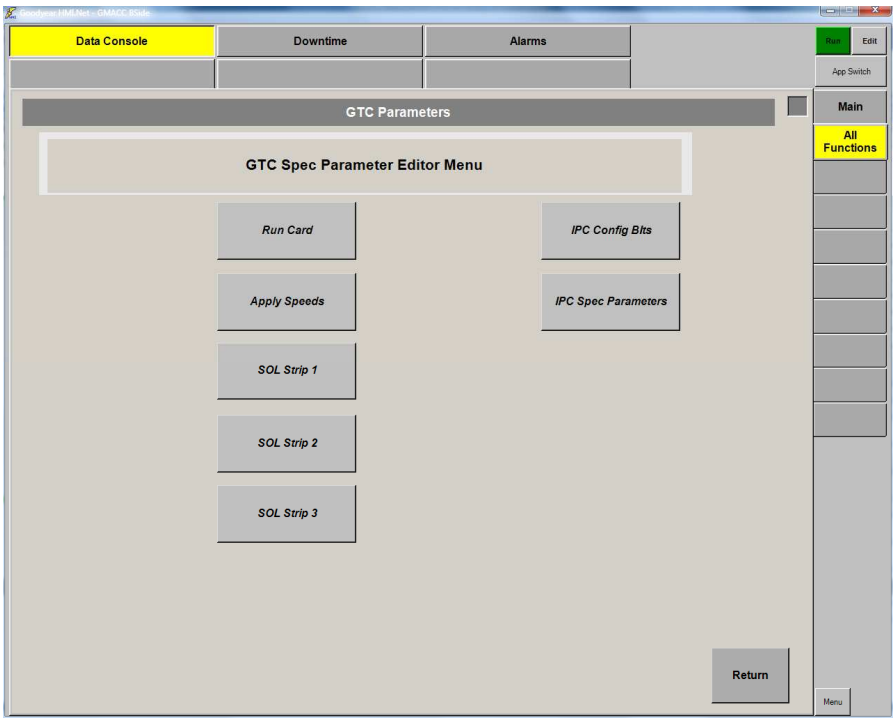
1. Machine status display



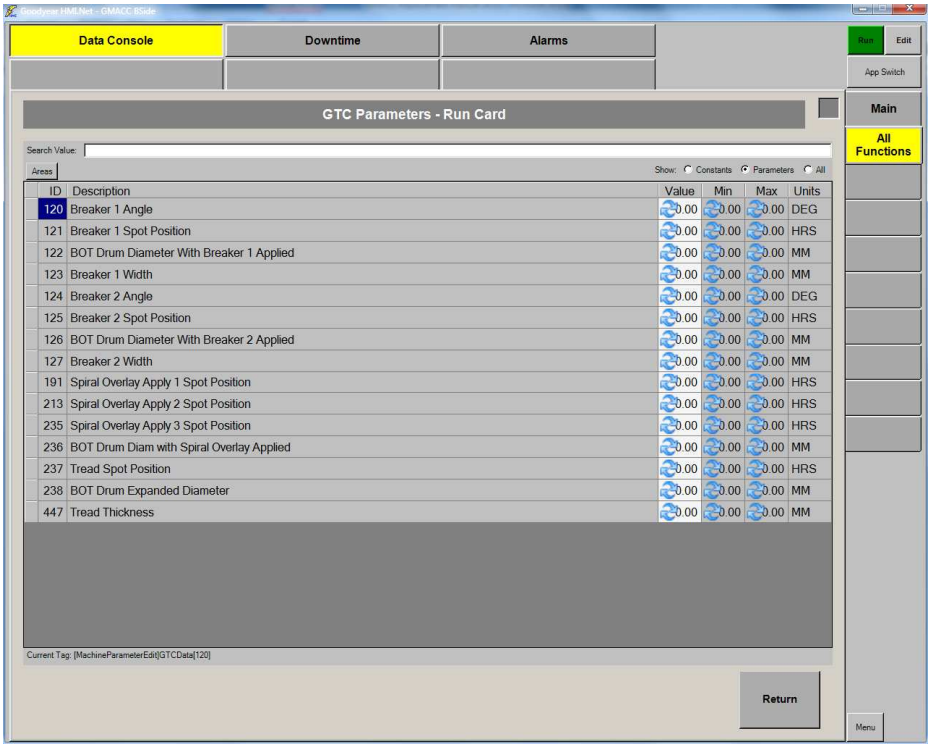
2. Schedule Code Change



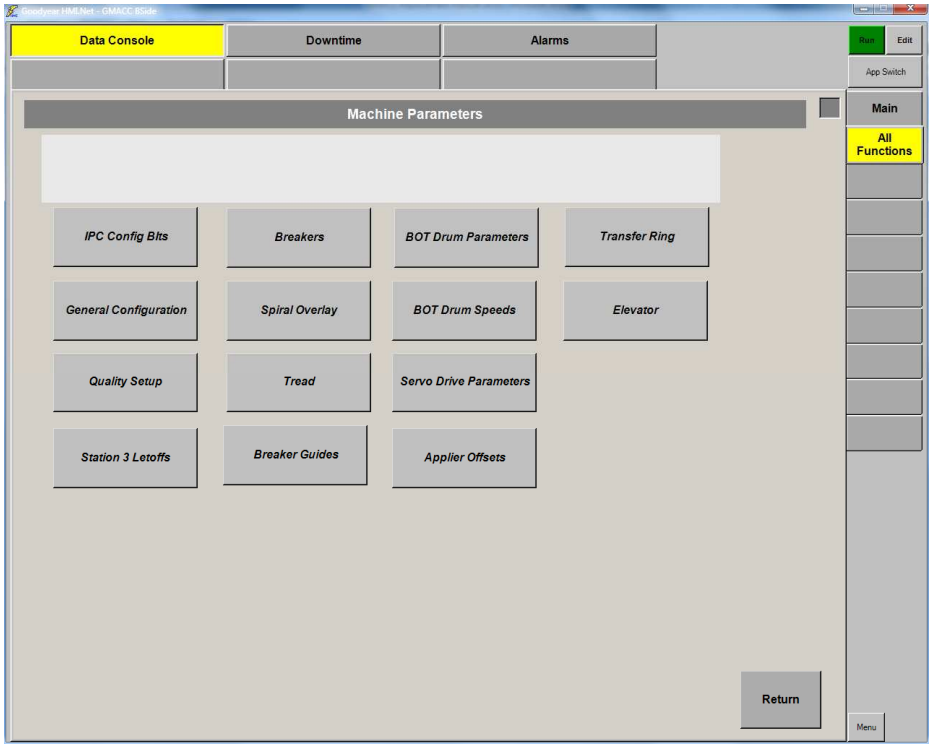
3. GTC Parameter View/Edit



Clicking on an area button opens a data grid and applies a filter for the area data.



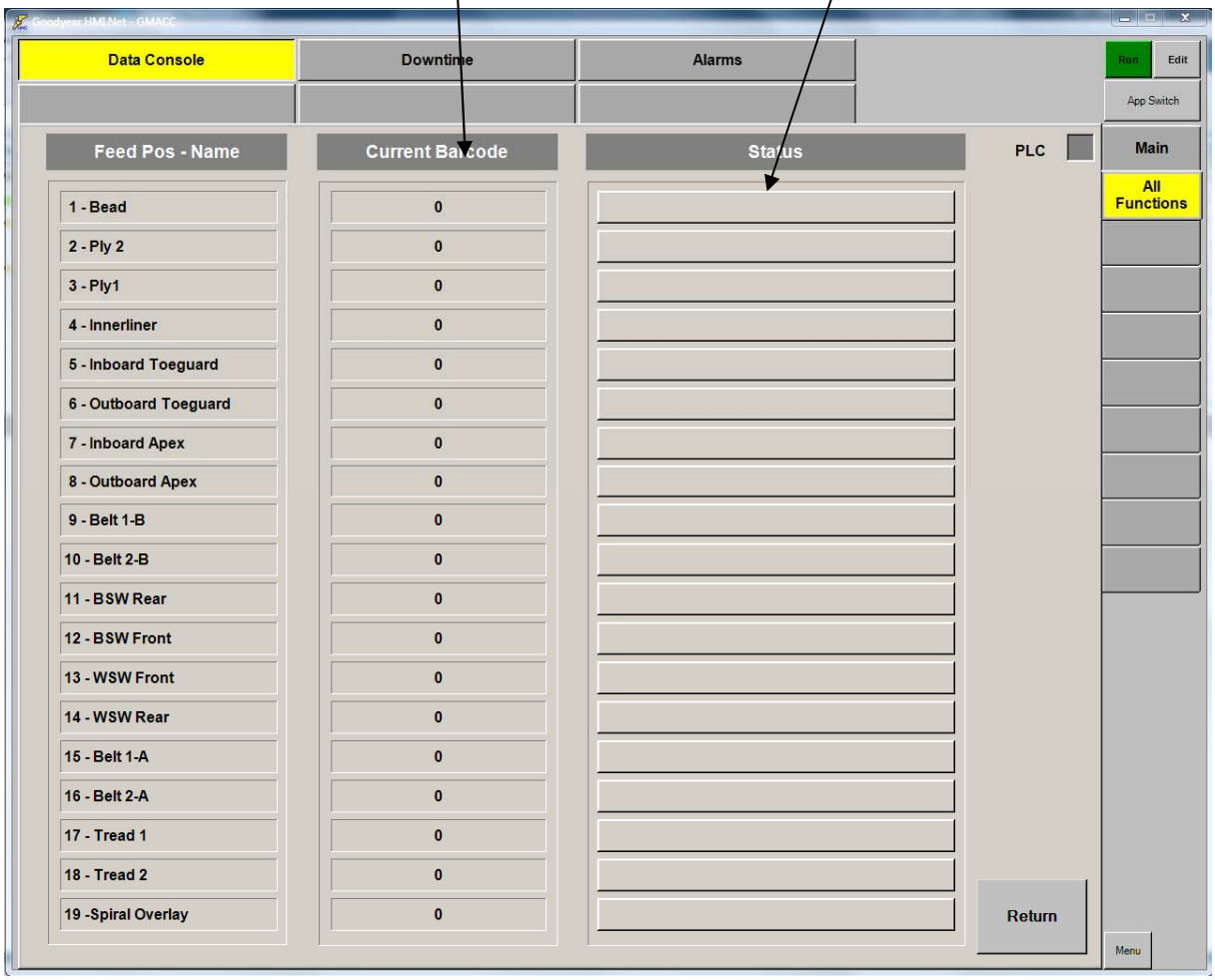
4. Machine Parameter View/Edit


Data Console
Downtime
Alarms
Run
Edit
App Switch
Machine Parameters
Main
All Functions
IPC Config Blts
Breakers
BOT Drum Parameters
Transfer Ring
General Configuration
Spiral Overlay
BOT Drum Speeds
Elevator
Quality Setup
Tread
Servo Drive Parameters
Station 3 Letoffs
Breaker Guides
Applier Offsets
Return
Menu

5. Material Inventory

Current feedpoint barcode

Status of component feedpoint:



States of Verification:

1) No Stock Loaded
2) Stock Loaded Not Verified
3) Correct Stock Loaded
4) Barcode Read Error
5) Wong Stock Loaded
6) BC Received Wait Verify

7) Put-in-use fault code

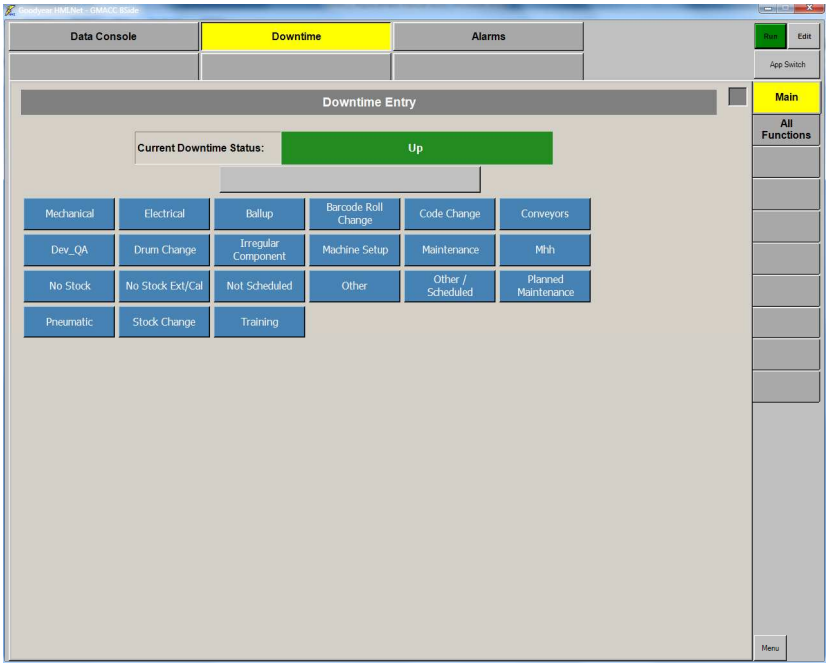
Put-in-use return codes:

Code	Description
0	Failure
1	Success
-1	Unknown Oracle Error
-2	Part Of Order
-3	Part Of Store
-4	Part Of Task
-5	Part Of Schedule
-6	Currently Not Available
-7	Invalid Nptid
-8	Invalid QA Status
-9	Invalid Location
-10	Invalid Product
-11	Invalid Machine Position
-12	Nptid is not at location specified
-13	Truck is currently In Use
-14	No Orders found
-15	None Available
-16	is Already There
-17	Duplicate Order Detected
-18	Invalid UserId
-19	Invalid Password
-20	Nptid is Not Available
-21	No Product is Available
-22	Product is already At Machine
-23	Product MisMatch

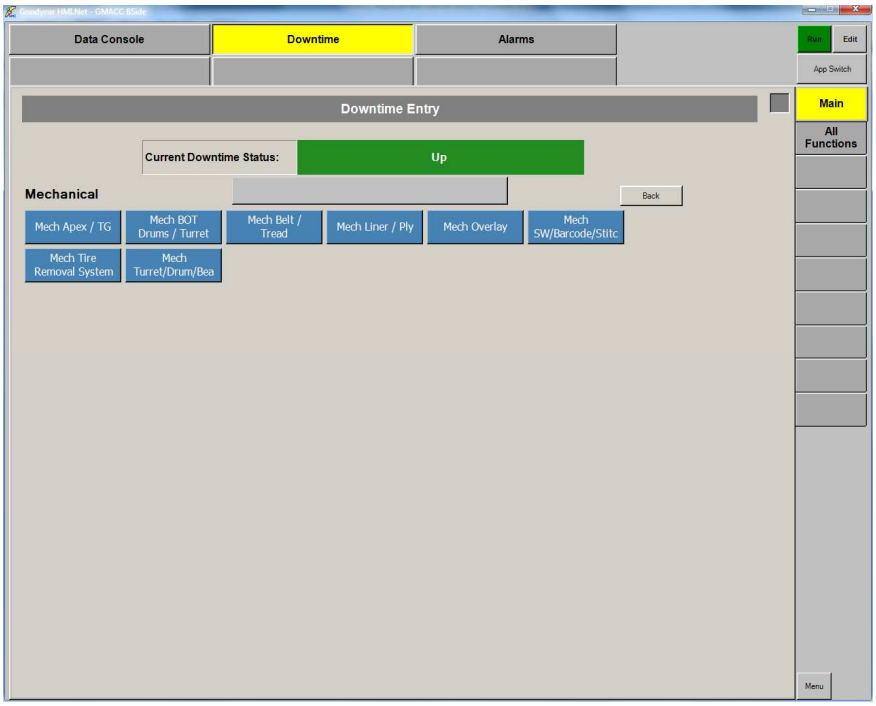
-24	Nptid is Consumed
-25	Invalid Spool Number
-26	Spool is not at location specified
-27	Spool is Not Available
-28	Spool is Consumed
-29	Invalid Train Number
-30	Invalid Aframe Number
-31	Aframe is not a location specified
-32	Invalid ForkTruck Number
-33	ForkTruck already Exists
-34	Task is Already Selected
-35	Task is Not Selected
-36	Task is Complete
-37	Task Not Found
-38	Product still Has Inventory
-39	Invalid Produced/Consumed Status
-40	Invalid Quantity Type
-41	Invalid Nptid Type
-42	Invalid Product Alias
-43	Invalid Quantity
-44	Invalid Overaged Limit
-45	Invalid Overaged Warning Limit
-46	Invalid Underaged Limit
-47	Invalid Store Number
-48	Invalid Store Type
-49	Invalid Task Type
-50	Invalid Order/Store Type

-51	Invalid Task Zone
-52	Invalid Truck Status
-53	Invalid Truck Zone
-54	No Schedule exists
-55	Partial Order
-56	Invalid Request Key
-57	Order Response was Manual
-58	Invalid Carrier
-59	Request Requires Confirmation
-60	SpoolWODefStore
-61	Location Still Has Inventory
-62	Invalid Order Number
-63	Location MisMatch
-64	Invalid Order Status
-65	Invalid Task number
-66	Insufficient Privileges
-67	Location already Exists
-68	Product already Exists
-69	Spool already Exists
-70	Aframe already Exists
-71	Invalid Move Status
-72	Product Position Mismatch
-25228	Timeout On Request

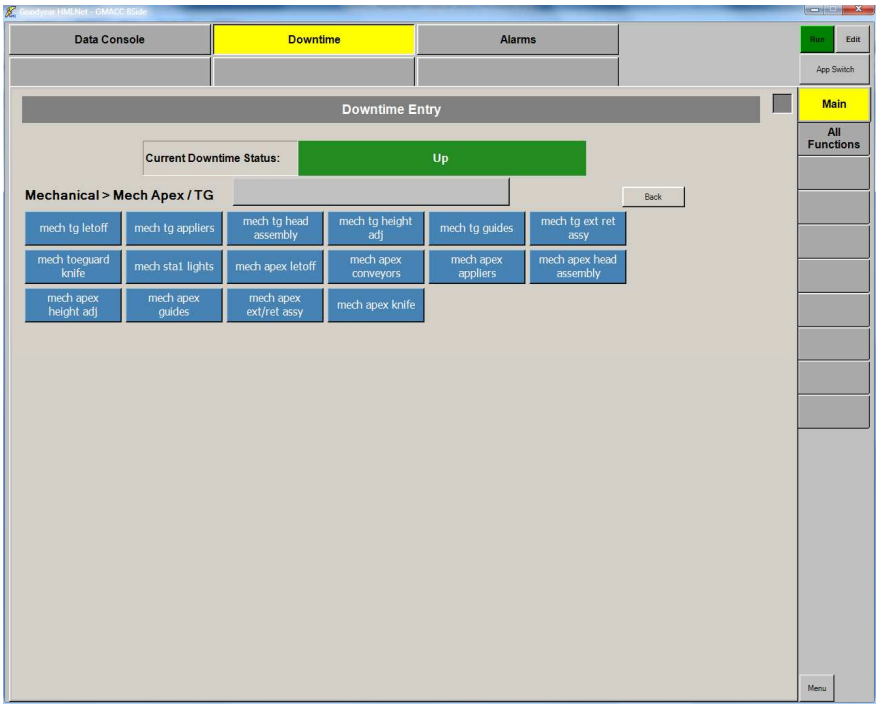
6. Downtime Entry



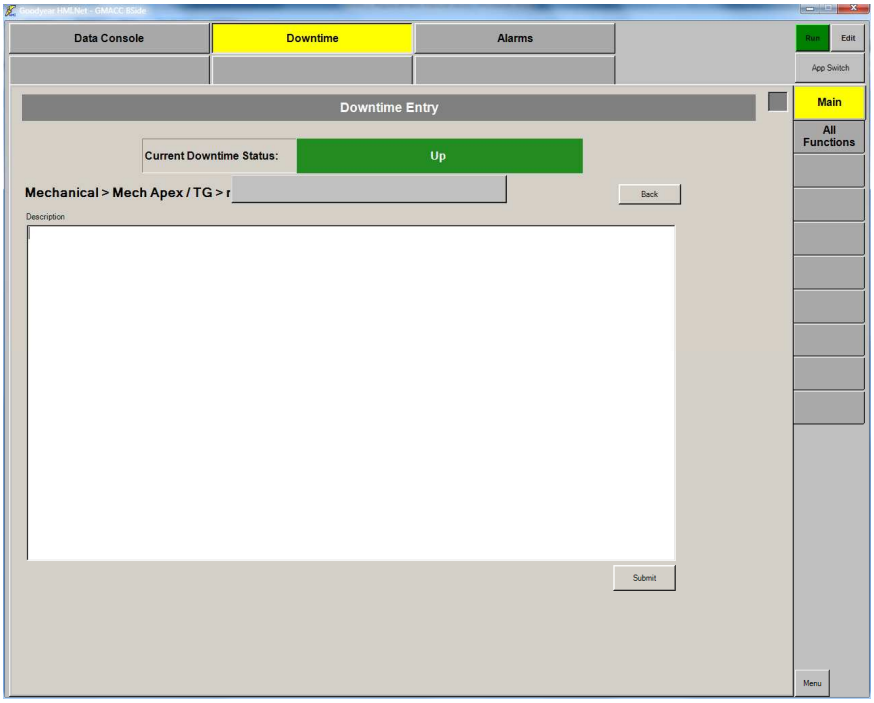
Click on a Downtime Category to drill-down to the Downtime Code:



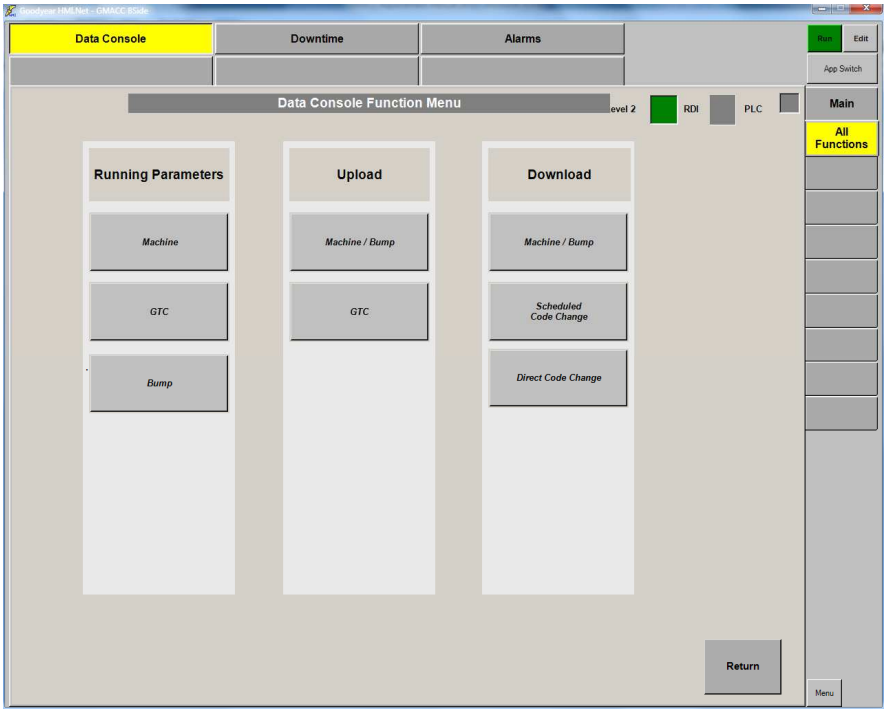
Up to 3 levels.



Optionally enter a description of the downtime event.
Click Submit button to log the downtime code. You are returned to the main Downtime display and the downtime reason will be displayed momentarily.



7. Main Navigation display to Running Parameters, Data Upload, and Data Download. Main use for this is to navigate the MCH and Bump Parameter Save and Restore utilities.



HOW TO BURN AN EPROM

1. Turn on computer and monitor.
2. Prompt should come up C\EPROM>
3. To show available programs list, type DIR *.BIN/W and press enter (W makes the screen wide).
4. This shows all binary files. The following files can be used for the A33 chip:
    a. RF7583DC.BIN for ARFs
    b. G37583DC.BIN for G3s
    These two files contain the UTIL75 Rev. 8.3 Debugger and RTE86 Rev. 2.1 Real Time Executive, Utilities(memory test, memory initialization and a display test) plus the downcodes for either machine.
5. To see a list of files that we use to program the other three chips for each type of machine, type DIR *.A** and press enter.
6. This list will come up:
    a. ARF
        i. RFXRUN.A36 03-06-09 Checksum: 148D
        ii. RFXRUN.A35 03-06-09 Checksum: AE23
        iii. RFXRUN.A34 03-06-09 Checksum: 095A
    b. G3
        i. G3RUN1.A36 05-07-15 Checksum: 4537
        ii. G3RUN1.A35 05-07-15 Checksum: FF3D
        iii. G3RUN1.A34 05-07-15 Checksum: 2262
    c. G3 (1310 ONLY)
        i. G31310.A36 11-13-05 Checksum: 6946
        ii. G31310.A35 11-13-05 Checksum: 38F9
        iii. G31310.A34 11-13-05 Checksum: 95C3
7. Enter the EPROM Programmer Application type EMP and press enter.
8. When the application opens, do the following to set up the application:
    a. Press menu option #5 to select manufacturer and device.
        i. Select #23 (TI) and press enter.
        ii. Then select #11 (27C010) for the device and press enter. This will return you to the main menu page.
    b. Press menu option J to select how the EPROM is programmed.
        i. Select #2 (QUICK PULSE) and press enter. This is the fastest way to program the chip.
    c. Press menu option U to select file type.

i. Select #1 (BINARY) and press enter.

d. Press menu option V and enter the file name that you want to use to program the chip. (i.e., RFXRUN.A36)
e. Make sure the buffer is empty. Follow these steps to clear it:
    i. Press menu option 7 to edit the buffer.
    ii. Press Alt-F to fill buffer.
    iii. Starting address is 00000, press enter.
    iv. Ending address is 1FFFF, press enter.
    v. Fill value is FF.
    vi. Ctrl_home takes you to the top of the buffer.
    vii. Esc to exit.
f. Press menu option #8 and press enter to load the file into the buffer.

9. Insert an EPROM chip into the 40 pin and lock the arm down. Make sure the notch in the chip is towards the locking arm side.
10. Check to make sure the EPROM is erased.
    a. Press menu option #2 (VERIFY DEVICE IS ERASED), it will tell you the erase was successful. If not, put it in the eraser for 20-30 minutes after cleaning the window on the chip.
    b. Check the buffer sum by pressing M, this will display the Checksum on the right side of the screen. Write it down for comparison later.
11. To program the EPROM:
    a. Press menu option #1 (Program with selected Algorithm) and press enter, this will program the EPROM with the buffer contents.
    b. Press menu option #3 (Verify Device Equals Buffer).
    c. If the buffer and device contents are the same, Press menu option N to verify the device Checksum. This should match the number that you wrote down earlier. If it doesn't, then you'll have to start over.

Memory Utility Test

1. Install the **Memory Utilities Test** chip.
2. Power up the Gmacc.
3. Initialize memory by entering **JF010 0.**
4. After memory has been initialized, enter **J8000 0** to load the program.
5. When asked, select **Multi Pass (3).**
6. When asked the memory size of the chip, select **384k (1)**, test will begin.

If there is an issue with any of the Ram chips, the Gmacc will display a value that will fall within the values displayed on **Gmacc Memory Addressing** sheet.

Testing Barcode Display

1. Plug in cable from Barcode Display Box to the DOS computer serial port.
2. Power up the DOS computer.
3. Type **PCPLUS** at any prompt to start the PCPLUS program.
4. While in the program, press **ALT+E** to show letters as they are being typed in. If you don't do this, the test will still work, but screen will not display what you have typed.
5. Make sure baud rate is correct(bottom middle of screen). Set by pressing Alt-P(port setup, option 5) should be 9600, N, 8, 1, COM1.
6. ALT-S to save and exit.
7. Type in 2 sets of 8 digits with a space and press Enter.
8. Should display on the box.

****If display is not working properly, tag up to send out****

Testing Dual Serial Card

1. Install the **SIOSBX** chip.
2. Install the dual serial card to be tested into port **J6.**
3. Use the jumper cable to connect card from the 50 pin connection on the serial card to the ports **J4** and **J5.**
4. Power up and press **3** for **Debugger.**
5. At the prompt, type in **JF010 0** to initialize memory.
6. Type in **Q** to quick load the program.
7. Type in **TIME** to set the time and date. Time and date should be entered without any spaces, colons, or slashes. Example. **1:35:00 09/21/2017** should be entered as **133500092117.**
8. At the time and date screen, type in **START** to start test.
9. To view test, type in **SIO** at the time and date screen.

   T4 R4 T5 R5 SBX: TA RA TB RB
   OK OK OK DS OK OK OK DS

   Above is an example of a good test result. If you have a **TO** or **BD** then you have a bad card or test cable.
10. At the time and date screen, type in **TOTALS** to see the number of failures.
11. At the time and date screen, type in **CLEAR** to reset the counts.

Testing IPD8 Board

1. Install the IPD8 5V wiring harness on the IPD8 board.
2. Check all the fuses on the board.
3. Install 4 DC inputs (White) on the first 4 slots.
4. Install 4 DC outputs (Red) on the last 4 slots.
5. Install the board in the Gmacc.
6. Install 50 pin cable from **J1** to the IPD8 card.
7. Install the IPD8 chip.
8. Initialize memory by entering **JF010 0.**
9. Type in **J8000 0** to load and begin test. Led light for 5v should be on the IPD8 board. If not, check the fuse at the as of the base of the **J1** socket. Test will run from **00-FF.** A sequence will run turning on the outputs, which in turn will turn on the inputs. If there is an issue, sequence will stop. Screen will show TEST FAILED.

   Pressing any key will stop the testing and show PASSED if good.

Testing Gmacc Motherboard

1. Install the **CHKALL** test chip in the **A36** port and insert cables into ports **J1, J2, J3, J4, J5, J11** for ARF motherboard. Other hardware is added to test G3. If testing a **G3** motherboard, two SBX boards with test jumper will be installed on either **J6** and **J7** as a set or **J8** and **J9** as a set**.** Four boards and two cables can be used to test both sets at the same time.
2. Press **3** to select **DEBUGGER.**
3. At prompt, enter **JF010 0** to Initialize memory.
4. Once complete enter **Q** at the prompt for quick load.
5. After the program is loaded, type in **TIME** to enter the new time and date.
   Time and date should be entered with no spaces, colons or slashes.
   Example. **1:35:00 09/17/2017** should be entered as **133500091717.**
6. After the time and date update, type in **START** to start the test. Lights should be flashing on the I/O boards on the back of the test stand.
7. When asked to select Pamux 1 or Pamux 2, select Pamux 2 by entering a **2.**
8. When back at the time and date screen, type in **PAMUX** to show results of Pamux test. Should display "PAMUX PORT CYCLING NORMALLY."
9. Show results of the PIO test by entering **PIO** at the time and date screen. Should display "8 BITS GOOD DATA BEING READ FROM J11."
10. Show results of the SIO test by entering **SIO** at the time and date screen. Below is an example of a good display on an **"ARF"** motherboard.

    T2 R2 T3 R3 T4 R4 T5 R5 T6 R7 T8 R9
    OK OK OK OK OK OK OK OK NA NA NA NA

    T5 may display a **DS. TO** or **BD** indicates a problem.

11. At the time and date screen, enter **TOTALS** to see error counts on each port.
12. At the time and date screen, enter **CLEAR** to clear out the counts.

If testing a **G3** motherboard, two SBX boards with test jumper will be installed on either **J6** and **J7** as a set or **J8** and **J9** as a set**.** Four boards and two cables can be used to test both sets at the same time. Good results should display **OK** on ports tested.

Troubleshooting Tips

If **SIO** test shows **BD** on any of the T* or R*, Try swapping the 1488 and 1489 IC chips on that port. Chips must be swapped as a set. Also check cables.

If **PIO** test shows that "PARALLEL PORT J11 RETURNING BAD DATA," could be due to bad cable or bad chip at port J11 in A78. Chip #8287

If Pamux is not running. Check for bad cable or possibly bad chips in A1 and A16. Do so by replacing both at the same time. Chip #7438

Also try replacing chip in A4. Chip #8304 or #8286.

CP-68 Testing

Hardware Install

1. Install the MAC-008. Check to make sure that all the jumpers are the same.
2. Set the dip switches on **S3** so that **1 and 2** is open.
3. Set the dip switches on **S1** so that **1 and 2** is **closed** and **3,4,5,6.**
4. Plug in the connector from the electronic assembly(power supply) to **J8** on the MAC-800 board.
5. Plug in the 4 wire connector from the indicator lights and horn, onto the four elongated pins on **JP2.**
6. Plug in the serial cable(50 pin) to **J2** on the MAC-008 board.
7. Install the 8 channel card on the **J6** socket.
    a. Be sure that all the switches are in the off position.
    b. Hook up the 96 pin connector.
8. Install the Ethernet card on the **J7** socket.
    a. Plug in 20 Pin connector on **J2** on the Ethernet card, using only the top row of the plug.
    b. Hook up ground wire to **J4.**
    c. Be sure that the ethernet MAC address chip is installed.
9. Install Coax cable from the **THIN NET.** This cable should be at least 3 ft. long and have a terminator on the end of it.

******* TO PUT MAC BOARD INTO SERVICE, DIP SWITCHES ON S1 SHOULD BE SET AS NUMBER 1 CLOSED AND 2,3,4,5,6 TO OPEN*******

Running the test

1. To connect the desktop computer to CP-68, install cable from **LU1** to PC COM PORT 1.
2. Power up the PC.
3. Power up the CP-68 unit.
4. At any command prompt type in **PCPLUS** to start the PCPLUS test program.
5. Once connected to the MAC-008, the program should start up and there should be a Command, prompt on the lower right side of the screen.
6. To start test, enter **START** at the command prompt.
    a. At this point the upper righthand part of the screen should show that ethernet is ok.
    b. The ethernet card should have red and green LEDs flashing if ethernet card is testing good.
7. To test the serial board, enter **SERIAL (The command prompt will only display 5 characters in its display, be sure to type in full command)** at the command prompt.
    a. Should show **OK** for all ports. ****The first set ports are for the LU2/RS422****
8. To test the memory, enter **RAM** at the command prompt.
9. To monitor the total number of errors, enter **TOTALS (The command prompt will only display 5 characters in its display, be sure to type in full command)** at the command prompt.

Upon powering up the CP-68, the red indicator light**(DS1)** on the MAC-008 board should be flashing. If it is not, possible issues are a bad serial card, a bad ethernet card, or a bad MAC-008 board. Power down and replace cards one at a time with known good cards. If either card does not fix issue, the MAC-008 could be bad.