

Totally Integrated Automation Portal

WintonWasher\_Recycler / PLC\_1 [CPU 315-2 PN/DP] / Program blocks

FB\_WintonWasher [FB1]

FB\_WintonWasher Properties

General

Name

FB\_WintonWasher

Number

1

Type

FB

Language

STL

Numbering

Manual

Information

Title

Winton Washer Recycler

Author

Comment

Winton Washer Recycler Program

Family

Version

0.1

User-defined ID

FB\_WintonWasher

Name	Data type	Offset	Default value	Accessible from HMI/OPC UA	Writ-able from HMI/OPC UA	Visible in HMI engi-neering	Setpoint	Supervi-sion	Comment
▼ Input									
ESTOP Pressed	Bool	0.0	false	True	True	True	False		
Ix Doors are Closed	Bool	0.1	false	True	True	True	False		
Ix Prestop Ext PX	Bool	0.2	false	True	True	True	False		
Ix Prestop Ret PX	Bool	0.3	false	True	True	True	False		
Ix Endstop Ext PX	Bool	0.4	false	True	True	True	False		
Ix Endstop Ret PX	Bool	0.5	false	True	True	True	False		
Ix Punch Ext PX	Bool	0.6	false	True	True	True	False		
Ix Punch Ret PX	Bool	0.7	false	True	True	True	False		
Ix Washer Present PX	Bool	1.0	false	True	True	True	False		
Ix Left Clamp Ext PX	Bool	1.1	false	True	True	True	False		
Ix Left Clamp Ret PX	Bool	1.2	false	True	True	True	False		
Ix Right Clamp Ext PX	Bool	1.3	false	True	True	True	False		
Ix Right Clamp Ret PX	Bool	1.4	false	True	True	True	False		
Ix Left Shear Ext PX	Bool	1.5	false	True	True	True	False		
Ix Left Shear Ret PX	Bool	1.6	false	True	True	True	False		
Backup Washer Present PX	Bool	1.7	false	True	True	True	False		
Ix Gripper Ext PX	Bool	2.0	false	True	True	True	False		
Ix Gripper Ret PX	Bool	2.1	false	True	True	True	False		
Ix Lat Ext PX	Bool	2.2	false	True	True	True	False		
Ix Lat Ret PX	Bool	2.3	false	True	True	True	False		
Ix T2 Ext PX	Bool	2.4	false	True	True	True	False		
Ix T2 Ret PX	Bool	2.5	false	True	True	True	False		
Ix T1 Ext PX	Bool	2.6	false	True	True	True	False		
Ix T1 Ret PX	Bool	2.7	false	True	True	True	False		
Ix Sense Part Ready PE	Bool	3.0	false	True	True	True	False		
Ix Right Shear Ext PX	Bool	3.1	false	True	True	True	False		
Ix Right Shear Ret PX	Bool	3.2	false	True	True	True	False		
Ix Cycle Start PB	Bool	3.3	false	True	True	True	False		
▼ Output									
Qx Shear Cyl Ret	Bool	4.0	false	True	True	True	False		
Qx Shear Cyl Ext	Bool	4.1	false	True	True	True	False		
Qx Prestop Cyl Ret	Bool	4.2	false	True	True	True	False		
Qx Prestop Cyl Ext	Bool	4.3	false	True	True	True	False		
Qx Endstop Cyl Ret	Bool	4.4	false	True	True	True	False		
Qx Endstop Cyl Ext	Bool	4.5	false	True	True	True	False		
Qx Clamp Cyl Ret	Bool	4.6	false	True	True	True	False		
Qx Clamp Cyl Ext	Bool	4.7	false	True	True	True	False		
Qx Punch Cyl Ret	Bool	5.0	false	True	True	True	False		
Qx Punch Cyl Ext	Bool	5.1	false	True	True	True	False		
Qx Gripper Cyl Ret	Bool	5.2	false	True	True	True	False		
Qx Gripper Cyl Ext	Bool	5.3	false	True	True	True	False		
Qx Lat Cyl Ret	Bool	5.4	false	True	True	True	False		
Qx Lat Cyl Ext	Bool	5.5	false	True	True	True	False		
Qx T2 Cyl Ret	Bool	5.6	false	True	True	True	False		
Qx T2 Cyl Ext	Bool	5.7	false	True	True	True	False		
Qx T1 Cyl Ret	Bool	6.0	false	True	True	True	False		
Qx T1 Cyl Ext	Bool	6.1	false	True	True	True	False		
Qx Cycle Start PL	Bool	6.2	false	True	True	True	False		
Qx Feeder OFF	Bool	6.3	false	True	True	True	False		
Qx Overhead Light ON	Bool	6.4	false	True	True	True	False		
Qx Fan ON	Bool	6.5	false	True	True	True	False		
Qx Auxiliary Lights ON	Bool	6.6	false	True	True	True	False		
InOut									
▼ Static									
Master Reset	Bool	8.0	false	True	True	True	False		
Pause	Bool	8.1	false	True	True	True	False		
▼ Auto	Struct	10.0		True	True	True	False		
Shear Cyl Ret	Bool	10.0	false	True	True	True	False		
Shear Cyl Ext	Bool	10.1	false	True	True	True	False		





Totally Integrated Automation Portal			
0043	R	#ClearPart."Retract Punch"	
0044	R	#ClearPart."Retract Shears"	
0045			
0046			
0047			
0048	////////////////////////////////////		
0049	//-----HMI Master Reset Response-----		
0050	//start clear part sequence		
0051	A	"HMI_DB".MasterReset	
0052	S	#ClearPart."Retract Shears"	
0053	R	#Step."Activate Prestop"	
0054	R	#Step."Check for Washer"	
0055	R	#Step."Drop Part"	
0056	R	#Step."Open Path to Washer Bin"	
0057	R	#Step."Open Path to Body Bin"	
0058	R	#Step."Open Path to Head Bin"	
0059	R	#Step."Pick and Place Retract Endstop"	
0060	R	#Step."Pick and Place Extend Lat Cyl"	
0061	R	#Step."Pick and Place Extend Clamp"	
0062	R	#Step."Pick and Place Extend Gripper"	
0063	R	#Step."Pick and Place Retract Lat Cyl"	
0064	R	#Step."Pick and Place Retract Gripper"	
0065	R	#Step."Pick and Place Extend Endstop"	
0066	R	#Step."Punch Out Washer"	
0067	R	#Step."Remove Head"	
0068	R	#Step."Retract Shears"	
0069	R	#Step."Sense Part Ready"	
0070	R	#Step.Idle	
0071			
0072	////////////////////////////////////		
0073	//-----Pause Logic-----		
0074	AN	#"Ix Doors are Closed"	
0075	// ON "HMI_DB"."Auto On"		
0076	O	"HMI_DB".Pause	
0077	=	#Pause	
0078			
0079	//use this timer to generate any delay desired		
0080	//CALL TON , "CylJam_Timer"		
0081	// time_type:=Time		
0082	// IN :=#Step."Retract Shears"		
0083	// PT :=T#2s		
0084	// Q :=#Auto."Shear Cyl Ret"		
0085	// ET :=		
0086			
Network 2: Manual Network			
Manual Control of all Outputs via HMI			
0001	////////////////////////////////////		
0002	//-----Manual: Prestop-----		
0003	A	"HMI_DB"."Prestop Ext"	
0004	AN	"HMI_DB"."Auto On"	
0005	=	#Manual."Prestop Cyl Ext"	
0006			
0007	A	"HMI_DB"."Prestop Ret"	
0008	AN	"HMI_DB"."Auto On"	
0009	=	#Manual."Prestop Cyl Ret"	
0010			
0011	////////////////////////////////////		
0012	//-----Manual: Endsotp-----		
0013	A	"HMI_DB"."Endstop Ext"	
0014	AN	"HMI_DB"."Auto On"	
0015	=	#Manual."Endstop Cyl Ext"	
0016			
0017	A	"HMI_DB"."Endstop Ret"	
0018	AN	"HMI_DB"."Auto On"	
0019	=	#Manual."Endstop Cyl Ret"	
0020			
0021	////////////////////////////////////		
0022	//-----Manual: Lateral-----		
0023	A	"HMI_DB"."Lat Ext"	
0024	AN	"HMI_DB"."Auto On"	
0025	=	#Manual."Lat Cyl Ext"	
0026			
0027	A	"HMI_DB"."Lat Ret"	
0028	AN	"HMI_DB"."Auto On"	
0029	=	#Manual."Lat Cyl Ret"	
0030			
0031	////////////////////////////////////		
0032	//-----Manual: Gripper-----		
0033	A	"HMI_DB"."Gripper Ext"	
0034	AN	"HMI_DB"."Auto On"	
0035	=	#Manual."Gripper Cyl Ext"	
0036			
0037	A	"HMI_DB"."Gripper Ret"	
0038	AN	"HMI_DB"."Auto On"	
0039	=	#Manual."Gripper Cyl Ret"	
0040			

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0041	////////////////////////////////////	
0042	//-----Manual: Shears-----	
0043	A "HMI_DB"."Shear Ext"	
0044	AN "HMI_DB"."Auto On"	
0045	= #Manual."Shear Cyl Ext"	
0046		
0047	A "HMI_DB"."Shear Ret"	
0048	AN "HMI_DB"."Auto On"	
0049	= #Manual."Shear Cyl Ret"	
0050		
0051	////////////////////////////////////	
0052	//-----Manual: Clamps-----	
0053	A "HMI_DB"."Clamp Ext"	
0054	AN "HMI_DB"."Auto On"	
0055	= #Manual."Clamp Cyl Ext"	
0056		
0057	A "HMI_DB"."Clamp Ret"	
0058	AN "HMI_DB"."Auto On"	
0059	= #Manual."Clamp Cyl Ret"	
0060		
0061	////////////////////////////////////	
0062	//-----Manual: Washer Punch-----	
0063	A "HMI_DB"."Punch Ext"	
0064	AN "HMI_DB"."Auto On"	
0065	= #Manual."Punch Cyl Ext"	
0066		
0067	A "HMI_DB"."Punch Ret"	
0068	AN "HMI_DB"."Auto On"	
0069	= #Manual."Punch Cyl Ret"	
0070		
0071	////////////////////////////////////	
0072	//-----Manual: Trap Door 1-----	
0073	A "HMI_DB"."T1 Ext"	
0074	AN "HMI_DB"."Auto On"	
0075	= #Manual."T1 Cyl Ext"	
0076		
0077	A "HMI_DB"."T1 Ret"	
0078	AN "HMI_DB"."Auto On"	
0079	= #Manual."T1 Cyl Ret"	
0080		
0081		
0082	////////////////////////////////////	
0083	//-----Manual: Trap Door 2-----	
0084	A "HMI_DB"."T2 Ext"	
0085	AN "HMI_DB"."Auto On"	
0086	= #Manual."T2 Cyl Ext"	
0087		
0088	A "HMI_DB"."T2 Ret"	
0089	AN "HMI_DB"."Auto On"	
0090	= #Manual."T2 Cyl Ret"	
0091		
0092	////////////////////////////////////	
0093	//-----Manual: Vibrate Feeder-----	
0094	AN "HMI_DB".Vibrate	
0095	AN "HMI_DB"."Auto On"	
0096	= #Manual."Feeder OFF"	
0097		
0098		
Network 3: Auto Sequence - Step Transitions		
How the auto sequence transitions states		
0001	////////////////////////////////////	
0002	//-----Idle to Sense Part Ready-----	
0003	A #Step.Idle	
0004	R #ClearPart."Reset Cyls for Idle"	
0005		
0006	A #Step.Idle	
0007	A #"Ix Cycle Start PB"	
0008	A "HMI_DB"."Auto On"	
0009	AN #Pause	
0010	AN "Bin_Count".Q	
0011	R #Step.Idle	
0012	S #Step."Sense Part Ready"	
0013		
0014		
0015	////////////////////////////////////	
0016	//-----sense part ready to activate prestop-----	
0017	A #Step."Sense Part Ready"	
0018	A #"Ix Sense Part Ready PE"	
0019	A "HMI_DB"."Auto On"	
0020	AN #Pause	
0021	S #Step."Activate Prestop"	
0022	R #Step."Sense Part Ready"	
0023		
0024	A #Step."Sense Part Ready"	
0025	AN "Bin_Count".Q	
0026	= #"Start _Timeout"	

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0027		
0028	//No parts timeout delay	
0029	CALL TON , "No Parts Timeout Timer"	
0030	Time	
0031	IN :=#"Start _Timeout"	
0032	PT :=T#30s	
0033	Q :=#No_Parts_Error	
0034	ET :=	
0035		
0036	////////////////////////////////////	
0037	//-----Activate prestop to Pick and Place-----	
0038	A #Step."Activate Prestop"	
0039	A #"Ix Prestop Ext PX"	
0040	A "HMI_DB"."Auto On"	
0041	AN #Pause	
0042	S #Step."Pick and Place Retract Endstop"	
0043	R #Step."Activate Prestop"	
0044		
0045	////////////////////////////////////	
0046	//-----Pick and place-----	
0047	//-----retract endstop-----	
0048	A #Step."Pick and Place Retract Endstop"	
0049	A #"Ix Endstop Ret PX"	
0050	A "HMI_DB"."Auto On"	
0051	AN #Pause	
0052	R #Step."Pick and Place Retract Endstop"	
0053	S #Step."Pick and Place Extend Lat Cyl"	
0054		
0055	////////////////////////////////////	
0056	//-----Pick and place-----	
0057	//-----Extend Lateral-----	
0058	A #Step."Pick and Place Extend Lat Cyl"	
0059	A #"Ix Lat Ext PX"	
0060	A "HMI_DB"."Auto On"	
0061	AN #Pause	
0062	R #Step."Pick and Place Extend Lat Cyl"	
0063	S #Step."Pick and Place Extend Clamp"	
0064		
0065	////////////////////////////////////	
0066	//-----Pick and place-----	
0067	//-----Extend Clamp-----	
0068	A #Step."Pick and Place Extend Clamp"	
0069	A #"Ix Left Clamp Ext PX"	
0070	A #"Ix Right Clamp Ext PX"	
0071	A "HMI_DB"."Auto On"	
0072	AN #Pause	
0073	R #Step."Pick and Place Extend Clamp"	
0074	S #Step."Pick and Place Extend Gripper"	
0075		
0076	////////////////////////////////////	
0077	//-----Pick and place-----	
0078	//-----Extend Gripper-----	
0079	A #Step."Pick and Place Extend Gripper"	
0080	A #"Ix Gripper Ext PX"	
0081	A "HMI_DB"."Auto On"	
0082	AN #Pause	
0083	R #Step."Pick and Place Extend Gripper"	
0084	S #Step."Pick and Place Retract Lat Cyl"	
0085		
0086	////////////////////////////////////	
0087	//-----Pick and place-----	
0088	//-----Retract Lateral-----	
0089	A #Step."Pick and Place Retract Lat Cyl"	
0090	A #"Ix Lat Ret PX"	
0091	A "HMI_DB"."Auto On"	
0092	AN #Pause	
0093	R #Step."Pick and Place Retract Lat Cyl"	
0094	S #Step."Pick and Place Retract Gripper"	
0095		
0096	////////////////////////////////////	
0097	//-----Pick and place-----	
0098	//-----Retract Gripper-----	
0099	A #Step."Pick and Place Retract Gripper"	
0100	A #"Ix Gripper Ret PX"	
0101	A "HMI_DB"."Auto On"	
0102	AN #Pause	
0103	R #Step."Pick and Place Retract Gripper"	
0104	S #Step."Pick and Place Extend Endstop"	
0105		
0106	////////////////////////////////////	
0107	//-----Pick and place-----	
0108	//-----Extend Endstop-----	
0109	A #Step."Pick and Place Extend Endstop"	
0110	A #"Ix Endstop Ext PX"	
0111	A "HMI_DB"."Auto On"	
0112	AN #Pause	
0113	R #Step."Pick and Place Extend Endstop"	
0114	S #Step."Check for Washer"	



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0115		
0116	////////////////////////////////////	
0117	//----check for washer to Open Path to Head Bin----	
0118	A #Step."Check for Washer"	
0119	A #"Ix Washer Present PX"	
0120	A "HMI_DB"."Auto On"	
0121	AN #Pause	
0122	R #Step."Check for Washer"	
0123	S #Step."Open Path to Head Bin"	
0124		
0125	//else	
0126	//timer, put output of timer on Drop part conditions	
0127		
0128	////////////////////////////////////	
0129	//-----check for washer to Drop part, put in condition for drp part	
0130	CALL TON , "Washer Not Present Timeout Timer"	
0131	Time	
0132	IN :=#Step."Check for Washer"	
0133	PT :=T#100ms	
0134	Q :=#Washer_NotPresent	
0135	ET :=	
0136		
0137	// A #Step."Check for Washer"	
0138	// A Check for Washer Timeout	
0139	// S #Step."Drop Part"	
0140	// R #Step."Check for Washer"	
0141		
0142	////////////////////////////////////	
0143	//-----Open Path to Head Bin, to Remove Head---	
0144	A #Step."Open Path to Head Bin"	
0145	A #"Ix T1 Ext PX"	
0146	A #"Ix T2 Ext PX"	
0147	A "HMI_DB"."Auto On"	
0148	AN #Pause	
0149	S #Step."Remove Head"	
0150	R #Step."Open Path to Head Bin"	
0151		
0152	////////////////////////////////////	
0153	//-----Remove Head, to Open Path to Washer Bin-----	
0154	//start delay after Extension	
0155	A #Step."Remove Head"	
0156	A #"Ix Left Shear Ext PX"	
0157	= #Okay_toDelay1	
0158		
0159	//delay	
0160	CALL TON , "Delay_Transition_toWasherBin"	
0161	Time	
0162	IN :=#Okay_toDelay1	
0163	PT :=T#1s	
0164	Q :=#Transition1_OK	
0165	ET :=	
0166		
0167	A #Step."Remove Head"	
0168	A #"Ix Left Shear Ext PX"	
0169	A #"Ix Right Shear Ext PX"	
0170	A #Transition1_OK	
0171	A "HMI_DB"."Auto On"	
0172	AN #Pause	
0173	R #Step."Remove Head"	
0174	S #Step."Open Path to Washer Bin"	
0175		
0176	////////////////////////////////////	
0177	//-----Open Path to Washer Bin to Retract Shears----	
0178	A #Step."Open Path to Washer Bin"	
0179	A #"Ix T1 Ext PX"	
0180	A #"Ix T2 Ret PX"	
0181	A "HMI_DB"."Auto On"	
0182	AN #Pause	
0183	R #Step."Open Path to Washer Bin"	
0184	S #Step."Retract Shears"	
0185		
0186	////////////////////////////////////	
0187	//-----Retract Shears to Punch Out Washer-----	
0188	A #Step."Retract Shears"	
0189	A #"Ix Left Shear Ret PX"	
0190	A #"Ix Right Shear Ret PX"	
0191	A "HMI_DB"."Auto On"	
0192	AN #Pause	
0193	R #Step."Retract Shears"	
0194	S #Step."Punch Out Washer"	
0195		
0196		
0197	////////////////////////////////////	
0198	//-----Punch Out Washer to Retract Punch----	
0199	A #Step."Punch Out Washer"	
0200	A #"Ix Punch Ext PX"	
0201	A "HMI_DB"."Auto On"	
0202	AN #Pause	

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<div>0203R#Step."Punch Out Washer"</div> <div>0204S#Step."Retract Punch"</div> <div>0205</div> <div>0206////////////////////////////////////</div> <div>0207//-----Retract Punch to Open Path to Body Bin-----</div> <div>0208//delay</div> <div>0209CALLTON,"Delay_Transition_toBodyBin"</div> <div>0210Time</div> <div>0211IN :=#Step."Retract Punch"</div> <div>0212PT :=T#1s</div> <div>0213Q :=#Transition2_OK</div> <div>0214ET :=</div> <div>0215</div> <div>0216A#Step."Retract Punch"</div> <div>0217A#"Ix Punch Ret PX"</div> <div>0218A"HMI_DB"."Auto On"</div> <div>0219AN#Pause</div> <div>0220A#Transition2_OK</div> <div>0221R#Step."Retract Punch"</div> <div>0222S#Step."Open Path to Body Bin"</div> <div>0223</div> <div>0224////////////////////////////////////</div> <div>0225//-----Open Pach to Body Bin to Drop Part-----</div> <div>0226A(</div> <div>0227A#Step."Open Path to Body Bin"</div> <div>0228A#"Ix T1 Ret PX"</div> <div>0229)</div> <div>0230O(</div> <div>0231A#Step."Check for Washer"</div> <div>0232A#Washer_NotPresent</div> <div>0233)</div> <div>0234A"HMI_DB"."Auto On"</div> <div>0235AN#Pause</div> <div>0236R#Step."Open Path to Body Bin"</div> <div>0237R#Step."Check for Washer"</div> <div>0238S#Step."Drop Part"</div> <div>0239</div> <div>0240////////////////////////////////////</div> <div>0241//-----Drop Part to Wait for Part Ready-----</div> <div>0242A#Step."Drop Part"</div> <div>0243A#"Ix Left Clamp Ret PX"</div> <div>0244A#"Ix Right Clamp Ret PX"</div> <div>0245A"HMI_DB"."Auto On"</div> <div>0246AN#Pause</div> <div>0247R#Step."Drop Part"</div> <div>0248S#Step."Sense Part Ready"</div> <div>0249</div> <div>Network 4: Auto Sequence - Outputs</div> <div>0001////////////////////////////////////</div> <div>0002//-----Idle-----</div> <div>0003</div> <div>0004//cycle start PL</div> <div>0005A#Step.Idle</div> <div>0006A"HMI_DB"."Auto On"</div> <div>0007AN"PL_Blink".Q</div> <div>0008=#"Enable PL Blink"</div> <div>0009</div> <div>0010CALLTON,"PL_Blink"</div> <div>0011Time</div> <div>0012IN :=#"Enable PL Blink"</div> <div>0013PT :=T#1s</div> <div>0014Q :=</div> <div>0015ET :=</div> <div>0016</div> <div>0017</div> <div>0018AN#Step.Idle</div> <div>0019AN#Pause</div> <div>0020A"HMI_DB"."Auto On"</div> <div>0021AN"HMI_DB".MasterReset</div> <div>0022O(</div> <div>0023L"PL_Blink".ET</div> <div>0024LT#500ms</div> <div>0025&gt;D</div> <div>0026)</div> <div>0027=#Auto."Cycle Start PL"</div> <div>0028</div> <div>0029////////////////////////////////////</div> <div>0030//-----Sense Part Ready-----</div> <div>0031// A #"Ix Sense Part Ready PE"</div> <div>0032// AN "Bin_Count".Q</div> <div>0033// = #Start_Delay_OffVibrate</div> <div>0034</div> <div>0035//Vibrating Feeder control (inversed)</div> <div>0036//delay after seeing part to remove time inbetween cycles</div> <div>0037CALLTOF,"Delay_VibrateOFF"</div>		



Totally Integrated Automation Portal		
0038	Time	
0039	IN :=#"Ix Sense Part Ready PE"	
0040	PT :=T#2s	
0041	Q :=#Stop_Vibrate	
0042	ET :=	
0043		
0044	//if neither are true, it is OFF	
0045	AN #Step."Sense Part Ready"	
0046	AN #Stop_Vibrate	
0047	ON "HMI_DB"."Auto On"	
0048	O #"Master Reset"	
0049	O "Bin_Count".Q	
0050	= #Auto."Feeder OFF"	
0051		
0052	//retract prestop	
0053	A #Step."Sense Part Ready"	
0054	= #Auto."Prestop Cyl Ret"	
0055		
0056	////////////////////////////////////	
0057	//-----Activate Prestop-----	
0058	//Extend Prestop	
0059	A #Step."Activate Prestop"	
0060	= #Auto."Prestop Cyl Ext"	
0061		
0062	////////////////////////////////////	
0063	//-----Pick and Place Retract Endstop-----	
0064	//retract endstop	
0065	A #Step."Pick and Place Retract Endstop"	
0066	= #Auto."Endstop Cyl Ret"	
0067		
0068	////////////////////////////////////	
0069	//-----Pick and Place Extend Lat Cyl-----	
0070	//retract endstop	
0071	A #Step."Pick and Place Extend Lat Cyl"	
0072	= #Auto."Lat Cyl Ext"	
0073		
0074	////////////////////////////////////	
0075	//-----Pick and Place Extend Clamp-----	
0076	A #Step."Pick and Place Extend Clamp"	
0077	= #Auto."Clamp Cyl Ext"	
0078		
0079	////////////////////////////////////	
0080	//-----Pick and Place Extend Gripper-----	
0081	A #Step."Pick and Place Extend Gripper"	
0082	= #Auto."Gripper Cyl Ext"	
0083		
0084	////////////////////////////////////	
0085	//-----Pick and Place Retract Lateral-----	
0086	A #Step."Pick and Place Retract Lat Cyl"	
0087	= #Auto."Lat Cyl Ret"	
0088		
0089	////////////////////////////////////	
0090	//-----Pick and Place Retract Gripper-----	
0091	A #Step."Pick and Place Retract Gripper"	
0092	= #Auto."Gripper Cyl Ret"	
0093		
0094	////////////////////////////////////	
0095	//-----Pick and Place Extend Endstop-----	
0096	A #Step."Pick and Place Extend Endstop"	
0097	= #Auto."Endstop Cyl Ext"	
0098		
0099	////////////////////////////////////	
0100	//-----Check for Washer-----	
0101		
0102	////////////////////////////////////	
0103	//-----Open Path(s) logic-----	
0104		
0105	//T1	
0106	A #Step."Open Path to Head Bin"	
0107	O #Step."Open Path to Washer Bin"	
0108	= #Auto."T1 Cyl Ext"	
0109		
0110	//T2	
0111	A #Step."Open Path to Head Bin"	
0112	O #Step."Open Path to Body Bin"	
0113	= #Auto."T2 Cyl Ext"	
0114		
0115		
0116	//T1	
0117	A #Step."Open Path to Body Bin"	
0118	= #Auto."T1 Cyl Ret"	
0119		
0120	//T2	
0121	A #Step."Open Path to Washer Bin"	
0122	= #Auto."T2 Cyl Ret"	
0123		
0124	////////////////////////////////////	
0125	//-----Remove Head-----	

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0126	A	#Step."Remove Head"	
0127	=	#Auto."Shear Cyl Ext"	
0128			
0129		////////////////////////////////////	
0130		//-----Open Path to Washer Bin-----	
0131		//this logic is with the T1 and T2 logic	
0132			
0133		////////////////////////////////////	
0134		//-----Retract Shears-----	
0135	A	#Step."Retract Shears"	
0136	=	#Auto."Shear Cyl Ret"	
0137			
0138		////////////////////////////////////	
0139		//-----Punch Out Washer-----	
0140	A	#Step."Punch Out Washer"	
0141	=	#Auto."Punch Cyl Ext"	
0142			
0143		////////////////////////////////////	
0144		//-----Retract Punch-----	
0145	A	#Step."Retract Punch"	
0146	=	#Auto."Punch Cyl Ret"	
0147			
0148			
0149		////////////////////////////////////	
0150		//-----Drop Part-----	
0151	A	#Step."Drop Part"	
0152	=	#Auto."Clamp Cyl Ret"	
0153			
0154	CALL	CTU , "Bin_Count"	
0155	Int		
0156	CU	:=#Step."Drop Part"	
0157	R	:= "HMI_DB".Reset_Bin_Count	
0158	PV	:=135	
0159	Q	:=#Bin_Overflow	
0160	CV	:= "HMI_DB".Bin_Count	
0161			
0162	CALL	CTU , "Cycle_Count"	
0163	Int		
0164	CU	:=#Step."Drop Part"	
0165	R	:=	
0166	PV	:=32767	
0167	Q	:=	
0168	CV	:= "HMI_DB".Cycle_Count	
0169			
0170			
0171		//and increment a monthly cycle count	
0172			
0173			
0174			
Network 5: Outputs			
Output Buffering			
0001		////////////////////////////////////	
0002		//-----PLC Output Card-----	
0003			
0004		//feeder	
0005	A	#Auto."Feeder OFF"	
0006	O(		
0007	A	#Step.Idle	
0008	A	#Manual."Feeder OFF"	
0009	AN	"HMI_DB"."Auto On"	
0010	)		
0011	O	#Cyl_Jam	
0012	O	# "Master Reset"	
0013	=	# "Qx Feeder OFF"	
0014			
0015		//overhead light, manually controlled	
0016	A	"HMI_DB"."Overhead Lights"	
0017	AN	#Cyl_Jam	
0018	O(		
0019	L	"Overhead_Blink".ET	
0020	L	T#500ms	
0021	>D		
0022	)		
0023	=	# "Qx Overhead Light ON"	
0024			
0025		//Aux Lights, manually controlled	
0026	A	"HMI_DB"."Auxiliary Lights"	
0027	=	# "Qx Auxiliary Lights ON"	
0028			
0029		//Fan, manually controlled	
0030	A	"HMI_DB".Fan	
0031	=	# "Qx Fan ON"	
0032			
0033		//cycle start pilot light	
0034	A	#Auto."Cycle Start PL"	
0035	=	# "Qx Cycle Start PL"	

Totally Integrated Automation Portal		
0036		
0037	////////////////////////////////////	
0038	//-----Output Bank Cyls-----	
0039	//////////-----Contains interlocking cyl conditions-----////////	
0040	////prestop	
0041	A	#Auto."Prestop Cyl Ext"
0042	O	#ClearPart."Extend Prestop"
0043	O	#Manual."Prestop Cyl Ext"
0044	AN	#"Ix Prestop Ext PX"
0045	AN	#Cyl_Jam
0046	=	#"Qx Prestop Cyl Ext"
0047		
0048	A	#Auto."Prestop Cyl Ret"
0049	O	#Manual."Prestop Cyl Ret"
0050	AN	#"Ix Prestop Ret PX"
0051	AN	#Cyl_Jam
0052	=	#"Qx Prestop Cyl Ret"
0053		
0054	////endstop	
0055	A	#Auto."Endstop Cyl Ext"
0056	O	#ClearPart."Reset Cyls for Idle"
0057	O	#Manual."Endstop Cyl Ext"
0058	AN	#"Ix Endstop Ext PX"
0059	AN	#Cyl_Jam
0060	=	#"Qx Endstop Cyl Ext"
0061		
0062	A	#Auto."Endstop Cyl Ret"
0063	O	#ClearPart."Retract Endstop"
0064	O	#Manual."Endstop Cyl Ret"
0065	AN	#"Ix Endstop Ret PX"
0066	AN	#Cyl_Jam
0067	=	#"Qx Endstop Cyl Ret"
0068		
0069	////gripper	
0070	A	#Auto."Gripper Cyl Ext"
0071	O	#ClearPart."Extend Gripper"
0072	O	#Manual."Gripper Cyl Ext"
0073	AN	#"Ix Gripper Ext PX"
0074	AN	#Cyl_Jam
0075	=	#"Qx Gripper Cyl Ext"
0076		
0077	A	#Auto."Gripper Cyl Ret"
0078	O	#ClearPart."Reset Cyls for Idle"
0079	O	#Manual."Gripper Cyl Ret"
0080	AN	#"Ix Gripper Ret PX"
0081	AN	#Cyl_Jam
0082	=	#"Qx Gripper Cyl Ret"
0083		
0084	////lateral cyl	
0085	A	#Auto."Lat Cyl Ext"
0086	O	#Manual."Lat Cyl Ext"
0087	A	#"Ix Prestop Ext PX"
0088	A	#"Ix Endstop Ret PX"
0089	A	#"Ix Punch Ret PX"
0090	A	#"Ix Left Shear Ret PX"
0091	A	#"Ix Right Shear Ret PX"
0092	A	#"Ix Left Clamp Ret PX"
0093	A	#"Ix Right Clamp Ret PX"
0094	AN	#"Ix Lat Ext PX"
0095	AN	#Cyl_Jam
0096	=	#"Qx Lat Cyl Ext"
0097		
0098	A	#Auto."Lat Cyl Ret"
0099	O	#ClearPart."Retract Lateral"
0100	O	#Manual."Lat Cyl Ret"
0101	A	#"Ix Prestop Ext PX"
0102	A	#"Ix Endstop Ret PX"
0103	A	#"Ix Punch Ret PX"
0104	A	#"Ix Left Shear Ret PX"
0105	A	#"Ix Right Shear Ret PX"
0106	AN	#"Ix Lat Ret PX"
0107	AN	#Cyl_Jam
0108	=	#"Qx Lat Cyl Ret"
0109		
0110	//clamp cyl	
0111	A	#Auto."Clamp Cyl Ret"
0112	O	#ClearPart."Retract Clamp"
0113	O	#Manual."Clamp Cyl Ret"
0114	A(	
0115	ON	#"Ix Left Clamp Ret PX"
0116	ON	#"Ix Right Clamp Ret PX"
0117	)	
0118	AN	#Cyl_Jam
0119	=	#"Qx Clamp Cyl Ret"
0120		
0121	A(	
0122	A	#Auto."Clamp Cyl Ext"
0123	O	#Manual."Clamp Cyl Ext"

Totally Integrated Automation Portal		
<div>0124A( 0125ON #Ix Left Clamp Ext PX" 0126ON #Ix Right Clamp Ext PX" 0127) 0128) 0129//these ensure part is clamped while sheared and punched 0130O #Step."Remove Head" 0131AN #Okay_toDelay1 0132O #Step."Punch Out Washer" 0133AN #Cyl_Jam 0134= #Qx Clamp Cyl Ext" 0135 0136//T1 Cyl 0137A #Auto."T1 Cyl Ext" 0138O #Manual."T1 Cyl Ext" 0139AN #Ix T1 Ext PX" 0140AN #Cyl_Jam 0141= #Qx T1 Cyl Ext" 0142 0143A #Auto."T1 Cyl Ret" 0144O #ClearPart."Retract Shears" 0145O #Manual."T1 Cyl Ret" 0146AN #Ix T1 Ret PX" 0147AN #Cyl_Jam 0148= #Qx T1 Cyl Ret" 0149 0150//T2 cyl 0151A #Auto."T2 Cyl Ext" 0152O #Manual."T2 Cyl Ext" 0153O #ClearPart."Reset Cyls for Idle" 0154AN #Ix T2 Ext PX" 0155AN #Cyl_Jam 0156= #Qx T2 Cyl Ext" 0157 0158A #Auto."T2 Cyl Ret" 0159O #Manual."T2 Cyl Ret" 0160AN #Ix T2 Ret PX" 0161AN #Cyl_Jam 0162= #Qx T2 Cyl Ret" 0163 0164//shear cyl 0165A #Auto."Shear Cyl Ext" 0166O #Manual."Shear Cyl Ext" 0167A #Ix Lat Ret PX" 0168A #Ix Punch Ret PX" 0169A( 0170ON #Ix Left Shear Ext PX" 0171ON #Ix Right Shear Ext PX" 0172) 0173AN #Cyl_Jam 0174= #Qx Shear Cyl Ext" 0175 0176A #Auto."Shear Cyl Ret" 0177O #ClearPart."Retract Shears" 0178O #Manual."Shear Cyl Ret" 0179A( 0180ON #Ix Left Shear Ret PX" 0181ON #Ix Right Shear Ret PX" 0182) 0183AN #Cyl_Jam 0184= #Qx Shear Cyl Ret" 0185 0186//punch cyl 0187A #Auto."Punch Cyl Ext" 0188O #Manual."Punch Cyl Ext" 0189A #Ix Left Shear Ret PX" 0190A #Ix Right Shear Ret PX" 0191AN #Ix Punch Ext PX" 0192AN #Cyl_Jam 0193= #Qx Punch Cyl Ext" 0194 0195A #Auto."Punch Cyl Ret" 0196O #ClearPart."Retract Punch" 0197O #Manual."Punch Cyl Ret" 0198A #Ix Left Shear Ret PX" 0199A #Ix Right Shear Ret PX" 0200AN #Ix Punch Ret PX" 0201AN #Cyl_Jam 0202= #Qx Punch Cyl Ret" 0203 0204  <b>Network 6: Clear Part</b>  Clears Part or Jam (potentially) from loading process. Pressing "MASTER RESET" on HMI triggers this sequence. Goes to idle when complete  0001//state logic</div>		

Totally Integrated Automation Portal		
0002	////////////////////////////////////	
0003	//-----Retract Shears to Retract Punch-----	
0004	A #ClearPart."Retract Shears"	
0005	A #"Ix Left Shear Ret PX"	
0006	A #"Ix Right Shear Ret PX"	
0007	A #"Ix T1 Ret PX"	
0008	AN #Pause	
0009	R #ClearPart."Retract Shears"	
0010	S #ClearPart."Retract Punch"	
0011		
0012	////////////////////////////////////	
0013	//-----Retract Punch to Extend Gripper-----	
0014	A #ClearPart."Retract Punch"	
0015	A #"Ix Punch Ret PX"	
0016	AN #Pause	
0017	R #ClearPart."Retract Punch"	
0018	S #ClearPart."Extend Gripper"	
0019		
0020	////////////////////////////////////	
0021	//-----Extend Gripper to Retract Endstop-----	
0022	A(	
0023	A #ClearPart."Extend Gripper"	
0024	A #"Ix Gripper Ext PX"	
0025	)	
0026	O(	
0027	A #ClearPart."Extend Gripper"	
0028	A #"Ix Lat Ret PX"	
0029	)	
0030	AN #Pause	
0031	R #ClearPart."Extend Gripper"	
0032	S #ClearPart."Retract Endstop"	
0033		
0034	////////////////////////////////////	
0035	//-----Retract Endstop to Extend Prestop-----	
0036	A(	
0037	A #ClearPart."Retract Endstop"	
0038	A #"Ix Endstop Ret PX"	
0039	)	
0040	O(	
0041	A #ClearPart."Retract Endstop"	
0042	A #"Ix Lat Ret PX"	
0043	)	
0044	AN #Pause	
0045	R #ClearPart."Retract Endstop"	
0046	S #ClearPart."Extend Prestop"	
0047		
0048	////////////////////////////////////	
0049	//-----Extend Prestop to Retract Lateral-----	
0050	A #ClearPart."Extend Prestop"	
0051	A #"Ix Prestop Ext PX"	
0052	AN #Pause	
0053	R #ClearPart."Extend Prestop"	
0054	S #ClearPart."Retract Lateral"	
0055		
0056	////////////////////////////////////	
0057	//-----Retract Lateral to Retract Clamp-----	
0058	A #ClearPart."Retract Lateral"	
0059	A #"Ix Lat Ret PX"	
0060	AN #Pause	
0061	R #ClearPart."Retract Lateral"	
0062	S #ClearPart."Retract Clamp"	
0063		
0064	////////////////////////////////////	
0065	//-----Retract Clamp to Reset Cyls For Idle-----	
0066	A #ClearPart."Retract Clamp"	
0067	A #"Ix Left Clamp Ret PX"	
0068	A #"Ix Right Clamp Ret PX"	
0069	AN #Pause	
0070	R #ClearPart."Retract Clamp"	
0071	S #ClearPart."Reset Cyls for Idle"	
0072		
0073	////////////////////////////////////	
0074	//reset other cyls	
0075	//this logic is actually in "Idle" logic because it must be in the same 'rung'	
0076	// A #ClearPart."Reset Cyls for Idle"	
0077	// A #"Ix Gripper Ret PX"	
0078	// A #"Ix Endstop Ext PX"	
0079	// A #"Ix T1 Ret PX"	
0080	// A #"Ix T2 Ext PX"	
0081	// R #ClearPart."Reset Cyls for Idle"	
0082	////////// S #Step.Idle	
0083		
0084	////////////////////////////////////	
0085	//end	
0086		
0087		

Totally Integrated Automation Portal		
<div>Network 7: Alarms</div> <div>Because the HMI Alarms only works with INT data type, must set the individual address of the Data Block created: Alarms_DB</div> <div><div>0001 //ESTOP</div><div>0002 A # "ESTOP Pressed"</div><div>0003 = %DB11.DBX0.0</div><div>0004</div><div>0005 //Doors</div><div>0006 AN # "Ix Doors are Closed"</div><div>0007 = %DB11.DBX0.1</div><div>0008</div><div>0009 //No Parts Timeout</div><div>0010 A #No_Parts_Error</div><div>0011 S %DB11.DBX0.2</div><div>0012</div><div>0013 //bin is full</div><div>0014 A "Bin_Count".Q</div><div>0015 = %DB11.DBX0.3</div><div>0016</div></div> <div>Network 8: Cylinder Jams</div> <div>Cylinder Jam Logic for each ext and retract signal. Each one is 2 seconds and can be adjusted</div> <div><div>0001 //blink Overhead lights when jammed</div><div>0002 A #Cyl_Jam</div><div>0003 AN "Overhead_Blink".Q</div><div>0004 = # "Enable Overhead Blink"</div><div>0005</div><div>0006 CALL TON , "Overhead_Blink"</div><div>0007 Time</div><div>0008 IN := # "Enable Overhead Blink"</div><div>0009 PT := T#1s</div><div>0010 Q :=</div><div>0011 ET :=</div><div>0012</div><div>0013</div><div>0014 //-----</div><div>0015 //prestop</div><div>0016 A #Auto."Prestop Cyl Ext"</div><div>0017 O #Manual."Prestop Cyl Ext"</div><div>0018 O #ClearPart."Extend Prestop"</div><div>0019 AN # "Ix Prestop Ext PX"</div><div>0020 AN #Pause</div><div>0021 = #Start_PreExt_Jam</div><div>0022</div><div>0023 CALL TON , "Prestop_Ext_Jam_timer"</div><div>0024 Time</div><div>0025 IN := #Start_PreExt_Jam</div><div>0026 PT := T#2s</div><div>0027 Q :=</div><div>0028 ET :=</div><div>0029</div><div>0030</div><div>0031 A #Auto."Prestop Cyl Ret"</div><div>0032 O #Manual."Prestop Cyl Ret"</div><div>0033 AN # "Ix Prestop Ret PX"</div><div>0034 AN #Pause</div><div>0035 = #Start_PreRet_Jam</div><div>0036</div><div>0037 CALL TON , "Prestop_Ret_Jam_timer"</div><div>0038 Time</div><div>0039 IN := #Start_PreRet_Jam</div><div>0040 PT := T#2s</div><div>0041 Q :=</div><div>0042 ET :=</div><div>0043</div><div>0044</div><div>0045</div><div>0046 //-----</div><div>0047 //endstop</div><div>0048 A #Auto."Endstop Cyl Ext"</div><div>0049 O #Manual."Endstop Cyl Ext"</div><div>0050 AN # "Ix Endstop Ext PX"</div><div>0051 AN #Pause</div><div>0052 = #Start_EndExt_Jam</div><div>0053</div><div>0054 CALL TON , "Endstop_Ext_Jam_timer"</div><div>0055 Time</div><div>0056 IN := #Start_EndExt_Jam</div><div>0057 PT := T#2s</div><div>0058 Q :=</div><div>0059 ET :=</div><div>0060</div><div>0061</div><div>0062 A #Auto."Endstop Cyl Ret"</div><div>0063 O #Manual."Endstop Cyl Ret"</div></div>		



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0064	O	#ClearPart."Retract Endstop"	
0065	AN	#"Ix Endstop Ret PX"	
0066	AN	#Pause	
0067	=	#Start_EndRet_Jam	
0068			
0069	CALL	TON , "Endstop_Ret_Jam_timer"	
0070		Time	
0071		IN :=#Start_EndRet_Jam	
0072		PT :=T#2s	
0073		Q :=	
0074		ET :=	
0075			
0076			
0077	//-----		
0078	//gripper		
0079			
0080	A	#Auto."Gripper Cyl Ext"	
0081	O	#Manual."Gripper Cyl Ext"	
0082	O	#ClearPart."Extend Gripper"	
0083	AN	#"Ix Gripper Ext PX"	
0084	AN	#Pause	
0085	=	#Start_GrpExt_Jam	
0086			
0087	CALL	TON , "Gripper_Ext_Jam_timer"	
0088		Time	
0089		IN :=#Start_GrpExt_Jam	
0090		PT :=T#2s	
0091		Q :=	
0092		ET :=	
0093			
0094			
0095	A	#Auto."Gripper Cyl Ret"	
0096	O	#Manual."Gripper Cyl Ret"	
0097	AN	#"Ix Gripper Ret PX"	
0098	AN	#Pause	
0099	=	#Start_GrpRet_Jam	
0100			
0101	CALL	TON , "Gripper_Ret_Jam_timer"	
0102		Time	
0103		IN :=#Start_GrpRet_Jam	
0104		PT :=T#2s	
0105		Q :=	
0106		ET :=	
0107			
0108	//-----		
0109	//lat		
0110			
0111	A	#Auto."Lat Cyl Ext"	
0112	O	#Manual."Lat Cyl Ext"	
0113	AN	#"Ix Lat Ext PX"	
0114	AN	#Pause	
0115	=	#Start_LatExt_Jam	
0116			
0117	CALL	TON , "Lat_Ext_Jam_timer"	
0118		Time	
0119		IN :=#Start_LatExt_Jam	
0120		PT :=T#2s	
0121		Q :=	
0122		ET :=	
0123			
0124			
0125	A	#Auto."Lat Cyl Ret"	
0126	O	#Manual."Lat Cyl Ret"	
0127	O	#ClearPart."Retract Lateral"	
0128	AN	#"Ix Lat Ret PX"	
0129	AN	#Pause	
0130	=	#Start_LatRet_Jam	
0131			
0132	CALL	TON , "Lat_Ret_Jam_timer"	
0133		Time	
0134		IN :=#Start_LatRet_Jam	
0135		PT :=T#2s	
0136		Q :=	
0137		ET :=	
0138			
0139			
0140	//-----		
0141	//clamp		
0142			
0143			
0144	A	#Auto."Clamp Cyl Ext"	
0145	O	#Manual."Clamp Cyl Ext"	
0146	AN	#"Ix Left Clamp Ext PX"	
0147	AN	#Pause	
0148	=	#Start_ClmpExt_Jam	
0149			
0150	CALL	TON , "Clamp_Ext_Jam_timer"	
0151		Time	

Totally Integrated Automation Portal		
0152	IN :=#Start_ClmpExt_Jam	
0153	PT :=T#2s	
0154	Q :=	
0155	ET :=	
0156		
0157		
0158	A #Auto."Clamp Cyl Ret"	
0159	O #Manual."Clamp Cyl Ret"	
0160	O #ClearPart."Retract Clamp"	
0161	AN #"Ix Left Clamp Ret PX"	
0162	AN #Pause	
0163	= #Start_ClmpRet_Jam	
0164		
0165	CALL TON , "Clamp_Ret_Jam_timer"	
0166	Time	
0167	IN :=#Start_ClmpRet_Jam	
0168	PT :=T#2s	
0169	Q :=	
0170	ET :=	
0171		
0172	//-----	
0173	//shears	
0174		
0175	A #Auto."Shear Cyl Ext"	
0176	O #Manual."Shear Cyl Ext"	
0177	AN #"Ix Left Shear Ext PX"	
0178	AN #Pause	
0179	= #Start_ShrExt_Jam	
0180		
0181	CALL TON , "Shear_Ext_Jam_timer"	
0182	Time	
0183	IN :=#Start_ShrExt_Jam	
0184	PT :=T#2s	
0185	Q :=	
0186	ET :=	
0187		
0188		
0189	A #Auto."Shear Cyl Ret"	
0190	O #Manual."Shear Cyl Ret"	
0191	O #ClearPart."Retract Shears"	
0192	AN #"Ix Left Shear Ret PX"	
0193	AN #Pause	
0194	= #Start_ShrRet_Jam	
0195		
0196	CALL TON , "Shear_Ret_Jam_timer"	
0197	Time	
0198	IN :=#Start_ShrRet_Jam	
0199	PT :=T#2s	
0200	Q :=	
0201	ET :=	
0202		
0203	//-----	
0204	//punch	
0205		
0206	A #Auto."Punch Cyl Ext"	
0207	O #Manual."Punch Cyl Ext"	
0208	AN #"Ix Punch Ext PX"	
0209	AN #Pause	
0210	= #Start_PunExt_Jam	
0211		
0212	CALL TON , "Punch_Ext_Jam_timer"	
0213	Time	
0214	IN :=#Start_PunExt_Jam	
0215	PT :=T#2s	
0216	Q :=	
0217	ET :=	
0218		
0219		
0220	A #Auto."Punch Cyl Ret"	
0221	O #Manual."Punch Cyl Ret"	
0222	O #ClearPart."Retract Punch"	
0223	AN #"Ix Punch Ret PX"	
0224	AN #Pause	
0225	= #Start_PunRet_Jam	
0226		
0227	CALL TON , "Punch_Ret_Jam_timer"	
0228	Time	
0229	IN :=#Start_PunRet_Jam	
0230	PT :=T#2s	
0231	Q :=	
0232	ET :=	
0233		
0234		
0235	//-----	
0236	//T1	
0237	A #Auto."T1 Cyl Ext"	
0238	O #Manual."T1 Cyl Ext"	
0239	AN #"Ix T1 Ext PX"	

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0240	AN	#Pause
0241	=	#Start_T1Ext_Jam
0242		
0243	CALL	TON , "T1_Ext_Jam_timer"
0244		Time
0245		IN :=#Start_T1Ext_Jam
0246		PT :=T#2s
0247		Q :=
0248		ET :=
0249		
0250		
0251	A	#Auto."T1 Cyl Ret"
0252	O	#Manual."T1 Cyl Ret"
0253	AN	"Ix T1 Ret PX"
0254	AN	#Pause
0255	=	#Start_T1Ret_Jam
0256		
0257	CALL	TON , "T1_Ret_Jam_timer"
0258		Time
0259		IN :=#Start_T1Ret_Jam
0260		PT :=T#2s
0261		Q :=
0262		ET :=
0263		
0264		
0265	//-----	
0266	//T2	
0267	A	#Auto."T2 Cyl Ext"
0268	O	#Manual."T2 Cyl Ext"
0269	AN	"Ix T2 Ext PX"
0270	AN	#Pause
0271	=	#Start_T2Ext_Jam
0272		
0273	CALL	TON , "T2_Ext_Jam_timer"
0274		Time
0275		IN :=#Start_T2Ext_Jam
0276		PT :=T#2s
0277		Q :=
0278		ET :=
0279		
0280		
0281	A	#Auto."T2 Cyl Ret"
0282	O	#Manual."T2 Cyl Ret"
0283	AN	"Ix T2 Ret PX"
0284	AN	#Pause
0285	=	#Start_T2Ret_Jam
0286		
0287	CALL	TON , "T2_Ret_Jam_timer"
0288		Time
0289		IN :=#Start_T2Ret_Jam
0290		PT :=T#2s
0291		Q :=
0292		ET :=
0293		
0294		
0295		
0296	//-----	
0297	//Prompt an alarm for general cyl alarm	
0298	A	"Prestop_Ext_Jam_timer".Q
0299	O	"Prestop_Ret_Jam_timer".Q
0300		
0301	O	"Endstop_Ext_Jam_timer".Q
0302	O	"Endstop_Ret_Jam_timer".Q
0303		
0304	O	"Gripper_Ext_Jam_timer".Q
0305	O	"Gripper_Ret_Jam_timer".Q
0306		
0307	O	"Lat_Ext_Jam_timer".Q
0308	O	"Lat_Ret_Jam_timer".Q
0309		
0310	O	"Clamp_Ext_Jam_timer".Q
0311	O	"Clamp_Ret_Jam_timer".Q
0312		
0313	O	"Shear_Ext_Jam_timer".Q
0314	O	"Shear_Ret_Jam_timer".Q
0315		
0316	O	"Punch_Ext_Jam_timer".Q
0317	O	"Punch_Ret_Jam_timer".Q
0318		
0319	O	"T1_Ext_Jam_timer".Q
0320	O	"T1_Ret_Jam_timer".Q
0321		
0322	O	"T2_Ext_Jam_timer".Q
0323	O	"T2_Ret_Jam_timer".Q
0324		
0325	=	#Cyl_Jam
0326	S	%DB11.DBX0.4
0327		

