SOFTROL

Software & Control for Automation

Understanding the autoPulse Shuttle System

100 Northpoint Parkway

Acworth, GA 30102

770.974.2700

www.softrol.com

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The shuttle is the heartbeat of the AutoPulse Automation System. It allows or disallows automatic movement of the entire wash isle. Shuttles can be configured in many different ways. Incline, L Type, or Scissors. The incline shuttle can be configured with one bed or two. It can be configured with one soiled bed and one clean bed. It can be configured with two clean beds. In this configuration, we determine the two beds by Bed A and Bed B. Bed A is always the clean or dryer loading bed. On shuttles with two clean beds, bed A should always be the most positive bed while facing the dryers.

Shuttle AutoPulse Setups
Before a shuttle can be incorporated into an AutoPulse Automation System, the AutoPulse setups on the shuttle must be entered. These AutoPulse setups contain the important operation information necessary for proper operation of the AutoPulse Automation System.

To enter the shuttle setups, from the reset menu, enter a valid programmed password.

1 = Manual 2 = Resume
3 = Reset Auto Only
4 = Reset & Position

Passwords are programmed on the shuttle in the same manner as passwords are programmed on the Washers and Dryers. The control should respond by displaying the following:

1=Setups
2=Calibration
3=Set Clock
Select setups to set up the shuttle system.

Negative Stop Pos.
The Stop Position is the farthest position to the left that the shuttle should be allowed to travel. This position is indicated by metal bars placed on the floor or photoelectric sensors for the shuttle system to sense. For most single shuttle systems, this should be programmed as 0.
(Shuttle #1 = 0 | Shuttle #2 = 1)

Positive Stop Pos.
The Positive Stop Position is the farthest position to the right that the shuttle should be allowed to travel. This position is indicated by metal bars placed on the floor or photoelectric sensors for the shuttle system to sense.
(Shuttle #1 = 21 | Shuttle #2 = 22).

Home Position
The Home Position is the position that the shuttle goes to when it has nothing to do. The home position must be located to allow unrestricted movement of washers and their doors and/or chutes when the shuttle is in this position.
(Shuttle #1 = 5 | Shuttle #2 = 15)

Load Position
The Load Position is the position that the shuttle goes to when a manual load shuttle operation is requested and items to be processed are loaded onto the shuttle manually. The load position must be located to allow unrestricted movement of washers and their doors and/or chutes when the shuttle is in this position.
(Shuttle #1 = 0 | Shuttle #2 = 22)

Origin
Origin tells the shuttle control whether the Origin is Positive (far right) or Negative (far left). If Negative is selected, the shuttle will always travel negatively when reset. If Positive is selected, the shuttle will always travel positively when reset. Press the YES key if the shuttle's origin is positive or press the NO key if the origin is negative.
(Shuttle #1 = NEG | Shuttle #2 = POS.)

Bed A Plus Stop Pos.
This setup is for negative origin shuttles that have two clean beds. This indicates to the shuttle the most positive position that Bed A can service.
(Shuttle #1 = 18)

Bed B Neg. Stop Pos.
This setup is for positive origin shuttles that have two clean beds. This indicates to the shuttle the most negative position that Bed B can service.
(Shuttle #2 = 6)

No-Dry Sta. #1
If No-Dry Station #1 exists, press YES. If not, press NO. A no-dry station is a location where the shuttle unloads processed items without processing them in a dryer. Up to 5 no-dry stations may be defined. Five inputs are provided for enabling of the no-dry stations if desired. Items will not be unloaded to the no-dry station if the enable input is off.
(Shuttle #1 / #2 = NO)

No-Dry Station #1 / Position #
If a no-dry station is to be utilized, the position number defines where the shuttle is to unload the processed items.
(Shuttle #1 = 0 | Shuttle #2 = 22)

No-Dry Station #1 / Class = (95-99)
This is the Class Type to be used by the no-dry station. This must be a number from 95 to 99. It may be desirable for certain processes or fabric types to be delivered to particular no-dry stations. This is accomplished through using the Class Type. When items to be processed are entered into the AutoPulse system, they are assigned a Class Type Number for the Dry Classification. The corresponding items will be directed to a no-dry station with a matching Class Number.
(No Dry Sta. #1 – Shuttle #1 / #2 = 95)
No-Dry Sta. #2 - #5 – Enter the same setup information for No-Dry Stations 2-5.
(No-Dry Sta. #2 – Shuttle #1 / #2 = 96)
(No-Dry Sta. #3 – Shuttle #1 / #2 = 97)
(No-Dry Sta. #4 – Shuttle #1 / #2 = 98)
(No-Dry Sta. #5 – Shuttle #1 / #2 = 99)

Priority
1=Washers 2=Dryers
Press 1 if the shuttle is to give washers loading priority or press 2 if the dryers should have loading priority. Decisions by the shuttle will be given preference according to the programmed priority.
(Shuttle #1 / #2 = WASHER)

Loading Washer / Belt ON Time
Belt On Time is the time (in seconds) that the conveyor belt should run for each step when loading a washer
(Shuttle #1 / #2 = 99)

Loading Washer / Belt OFF Time
Belt Off Time is the time (in seconds) that the conveyor should wait between each step when loading a washer.
(Shuttle #1 / #2 = 0)

Unloading Washer / Delay at Unload
Delay at Unload is the time (in seconds) that the conveyor should wait after the washer has started unloading to begin moving the load up the conveyor.
(Shuttle #1 / #2 = 8)

Unloading Washer / Belt On Time
Belt On Time is the time (in seconds) that the conveyor belt should run for each step when unloading a washer.
(Shuttle #1 / #2 = 2)

Unloading Washer / Belt Off Time
Belt Off Time is the time (in seconds) that the conveyor should wait between each step when unloading the washer.
(Shuttle #1 / #2 = 5)

Unloading Washer / Belt Full Delay
Belt Full Delay is the time (in seconds) that the conveyor belt should wait when unloading a washer after items have passed the eye to ensure that all items have been unloaded.
(Shuttle #1 / #2 = 10)

Declare Belts Empty
Declare Belts Empty is the time (in seconds) that the belt should continue to run after the last item has passed the eye when loading a dryer.
(Shuttle #1 / #2 = 10)

Loading Dryer / Belt On Time
Belt On Time is the time (in seconds) that the conveyor belt should run for each step when loading a dryer.
(Shuttle #1 / #2 = 99)

Loading Dryer / Belt Off Time
Belt Off Time is the time (in seconds) that the conveyor should wait between each step when loading a dryer.
(Shuttle #1 / #2 = 1)

Preferred Range Lo
Preferred Range Lo is used to assign the low position that determines the preferable range for the shuttle to operate. Decisions by the shuttle will be given preference according to the programmed range.
(Shuttle #1 = 0 | Shuttle #2 = 11)

Preferred Range Hi
Preferred Range Hi is used to assign the high position that determines the preferable range for the shuttle to operate.
(Shuttle #1 = 10 | Shuttle #2 = 22)

Approaching Position / Key in Counts
Approaching Position allows control of the shuttle speed so that it can slow down when approaching a target. The correct entry will result in the shuttle reducing its speed before reaching the approaching target. If the shuttle has to back up to positions, the counts should be increased. If the shuttle slows down too early, the counts should be decreased.
(Shuttle #1 / #2 = 1500)

Two Shuttle Net
Press YES if there are two shuttles. Press NO if only one shuttle is used. When two shuttles share the same rail on a system, the Two Shuttle Net setup must be enabled. The two shuttles will communicate with each other important safety and position information.
(Shuttle #1 / #2 – YES)

Two Shuttle Net / Safe Pos. Shuttle #1
To establish a safe minimum distance to be maintained between the two shuttles, two established positions are entered where the two shuttles are at a safe distance apart. Safe Pos. Shuttle #1 is the position number that shuttle #1 (always the negative origin shuttle) can be positioned safely.
(Shuttle #1 / #2 = 11)

Two Shuttle Net / Safe Pos. Shuttle #2
Safe Pos. Shuttle #2 is the position number that shuttle #2 (always the positive origin shuttle) can be positioned safely.
(Shuttle #1 / #2 = 12)

Two Shuttle Net / Calibrated To Pos. #
For shuttle #1, this is the farthest positive position that the shuttle is calibrated for. For shuttle #2, this is the farthest negative position that the shuttle is calibrated for. (Shuttle #1 = 21 | Shuttle #2 = 1)

Two Shuttle Net / Other Shuttle ID #
For each of the shuttles, the other shuttle's ID number is necessary for communication purposes
(Shuttle #1 = 202 | Shuttle #2 = 201)

Belt Photo-Eye Delay / Min. Belt Time
Minimum Belt Time is the time (in seconds) that the conveyor should run the belt when loading. The belt full indication will be ignored during this time.
(Shuttle #1 / #2 = 10)

Belt Photo Eye Delay / Eye Block Delay
Eye Block Delay is the time (in seconds) that the conveyor should run the belt after sensing that the belt is full. The belt full indication will be ignored during this time.
(Shuttle #1 / #2 = 3)

The following elevation/depth setups are only on Scissors Type Shuttles.
Scissors type shuttles can have washers only on the washer isle, but dryers and washers are allowed on the dryer isle and can only be automatically unloaded in this direction. A push button wired to the front panel input FPD4 (Mirror Washer Select) and pressing the button will allow the shuttle to manually unload a mirrored washer.

C1 Elevation – Depth / C1 Max. Elevation
This should be the maximum value of the height counter sensor for conveyor 1. The proximity switch that indicates the extent of travel will set the elevation to the programmed value.
(Shuttle #1 / #2 = 50)

C1 Elevation – Depth / C1 Pos. @ Center
This should be the value of the depth counter sensor for conveyor 1 when positioned in the center travel position. The proximity switch that indicates the center travel position will set the depth to the programmed value.
(Shuttle #1 / #2 = 21)

C1 Elevation – Depth / C1 Pos. @ Extend
This should be the value of the depth counter sensor for conveyor 1 when positioned in the North extent position. The proximity switch that indicates the North extent position will set the depth to the programmed value.
(Shuttle #1 / #2 = 47)

C2 Elevation – Depth / C2 Max. Elevation
This should be the maximum value of the height counter sensor for conveyor 2. The proximity switch that indicates the extent of travel will set the elevation to the programmed value.
(Shuttle #1 / #2 = 50)

C2 Elevation – Depth / C2 Pos. @ Center
This should be the value of the depth counter sensor for conveyor 2 when positioned in the center travel position. The proximity switch that indicates the center travel position will set the depth to the programmed value.
(Shuttle #1 / #2 = 21)

C2 Elevation – Depth / C2 Pos. @ Extend
This should be the value of the depth counter sensor for conveyor 2 when positioned in the North extent position. The proximity switch that indicates the North extent position will set the dept to the programmed value.
(Shuttle #1 / #2 = 47)

ArcNet Node ID #
This is the unique ID number for the shuttle in the AutoPulse System. Valid ID numbers are 1 to 254. ID #255 is reserved for AutoPulse Plant Monitor (PPMM or PPMM) database. On an AutoPulse system with one shuttle this ID number is usually 201.
(Shuttle #1 = 201 | Shuttle #2 = 202)

Database Node ID #
This is the required ArcNet ID number for the PulseNet Plant Monitor (PPMM or PPMM) database.
(Shuttle #1 = 255 | Shuttle #2 = 255)

Calibration
After setups have been performed and if all of the shuttle position markers are in place, the shuttle can then be calibrated. To enter the shuttle setups, from the reset menu, enter a valid programmed password.

1=Setups
2=Calibration
3=Set Clock

Select calibrations to calibrate the shuttle system.

If all shuttle safeties are O.K., the shuttle will move all the way to its origin (negative or positive) and begin an automatic calibration of the system.

The shuttle will travel along the rails counting position markers and storing the relative encoder values for each position. Once the shuttle reaches the end of the rails it will report if the calibration was successful or not. If the calibration was not successful, check for incorrect values in the shuttle setups. The shuttle may not have sensed all of the position markers as it passed them because of marker positioning or sensor adjustment. Something on the floor may have caused the shuttle to count more positions than the shuttle setups indicate.

Set Clock
The shuttle control has an internal clock that is used to time and date-stamp the PPMM Data Records. To enter the shuttle setups, from the reset menu, enter a valid programmed password.

1=Setups
2=Calibration
3=Set Clock

Select set clock to set the shuttle system.
Use the keypad to enter the correct date and time (in 24-hour format).

Safety Reset
Shuttle operation is disabled until the system-reset button is pressed. The system reset will be successful if all shuttle safeties are simultaneously satisfied. If a particular safety is not O.K., the control interface display will indicate the problem. Possible problems are:

24 VAC Power Fault
Check the 24 VAC control circuit fuse.

E-Stop #1 Fault
The Emergency Stop on the shuttle is pressed.

Motor Drive Fault
The variable speed drive has a fault.

Motor O.L.'s Fault
The motor overloads need reset.

Side Bar Sw. Fault
One or both of the safety sidebars need reset.

E-Stop #2 Fault
The Emergency Stop on the podium is pressed.

Aux. Safeties Fault
The Auxiliary Safeties circuit has a fault.

Position out of Zone
A position marker was encountered but not within the calibrated zone for that position. The calibrated zone for a position is defined as the encoder count stored for that position +/- the Approaching Position Counts. The shuttle expects to see the position within the defined validation zone. This usually is caused by metal within the floor (rebar) or metal objects on the floor or if using photoelectric positioning, false reflections usually from machine bases.

Zone Without a Pos.!
A position marker was expected but not encountered within the calibrated zone for that position. The marker being too far from the sensor or being out of center from the sensor usually causes this. The marker can be raised with additional washers or repositioned to be on center of the travel of the sensor.

Unexpected End Pos.!
This occurs when an end position marker is encountered without also having the slow down marker encountered. This usually is caused by metal within the floor (rebar) or metal objects on the floor or if using photoelectric positioning, false reflections usually from machine bases.

Press Safety Reset
All series safeties are O.K. and pressing the safety reset will enable shuttle operation.

If the safety reset is successful, the shuttle control display will respond by displaying the following menu:

System Restart Menu
1 = Manual 2 = Resume
3 = Reset Auto Only
4 = Reset & Position

Manual Operation (From Menu)
The shuttle control functions can be checked out or operated manually from the control panel. To access the manual shuttle functions, select Manual from the System Restart Menu. The manual shuttle functions are selected from three groups of menus:

1=Shuttle Movements
2=Soil Conveyor Select or Conv. A Select
3=Clean Conveyor Select or Conv. B Select

Shuttle Movements
The shuttle can be moved in the negative or positive direction by pressing the respective function. A destination can also be entered for the shuttle to automatically move to. Positive and Negative shuttle movement can only be performed when the conveyors are at the travel (center) position.

1 = Move Shuttle Neg.: Moves shuttle negative
2 = Move Shuttle Pos.: Moves shuttle positive
3 = Enter Destination: Move shuttle to entered position

Clean Conveyor or A Conveyor Select
Selecting the following respective function can operate Movements of the Clean (Load Dryer or Bed A) Conveyor:

1 = Dryer: Moves soil conveyor toward dryer
2 = Center: Moves soil conveyor from dryer to center
3 = Wash: Moves soil conveyor toward washer
4 = Center: Moves soil conveyor from washer to enter
5 = Belt: Moves soil conveyor belt
6 = Belt: Opposite direction (Scissors Shuttle Only)
7 = Close Both Flaps (Scissors Shuttle Only)
8 = Open Wash Flaps (Scissors Shuttle Only)
9 = Open Dry Flaps (Scissors Shuttle Only)
Up Arrow = Move Conveyor Up (Scissors Shuttle Only)
Down Arrow = Move Conveyor Down (Scissors Shuttle Only)

Soil Conveyor (if applicable) or B Conveyor Select
Selecting the respective function can operate Movements of the Soil (Load Washer or Bed B) Conveyor:

1 = Dryer: Moves clean conveyor toward dryer
2 = Center: Moves clean conveyor from dryer to enter
3 = Wash: Moves clean conveyors toward washer
4 = Center: Moves clean conveyor from washer to center
5 = Belt: Moves clean conveyor belt
6 = Belt: Opposite direction (Scissors Shuttle Only)
7 = Close Both Flaps (Scissors Shuttle Only)
8 = Open Wash Flaps (Scissors Shuttle Only)
9 = Open Dry Flaps (Scissors Shuttle Only)
Up Arrow = Move Conveyor Up (Scissors Shuttle Only)
Down Arrow = Move Conveyor Down (Scissors Shuttle Only)

Automatic Operation
Automatic operation of the shuttle is entered via the System Restart Menu.

System Restart Menu
1 = Manual 2 = Resume
3 = Reset Auto Only
4 = Reset & Position

The method for beginning automatic operation will depend on the circumstances at system startup. The following guidelines will result in proper startup of the system.

Resume
When Resume is selected, the shuttle simply continues the last action when automatic operation was interrupted.

On systems with two shuttles, the other shuttle may be started and resumed by pressing the [2] and [ENT] keys simultaneously. This is very useful in situations where one shuttle's safety has reset the other shuttle. Both shuttles can then resume their previous actions.

Reset Auto Only
When Reset Auto Only is selected; the shuttle first checks its belts to see if any items are loaded onto the shuttle.

If items are detected, the data record processing information will have to be entered and verified before resuming automatic operation. This operation is useful to review of change the processing information for items on the shuttle.

1 = Wash Process Data:
Selects washer process data for entry
Class # =: Key in Wash Class
Formula # =: Key in Wash Formula

2 = Dry Process Data:
Selects dryer process data for entry
Class # =: Key in Dryer Class
Formula # =: Key in Dryer Formula

3 = Item Specific Data:
Selects item specific data for entry
Item #: Key in Item Number
Lot #: Key in Lot Number
Customer #: Key in Customer Number
Count: Key in Item Count
Weight: Key in Item Weight
Destination: Key in Post. Dest.

Rest & Position
When Reset & Position is selected, the shuttle performs the same reset as in Reset Auto Only. In addition, the shuttle moves to its programmed origin extent to reset the known position. After moving to the origin extent, the shuttle then moves to the programmed home position. This function is the safest way to rest the system to automatic.

Automatic Sequence

Once automatic operation has been reset, the shuttle begins checking machinery for loading / unloading needs.

The status of the shuttle is displayed on the Control Interface. The load washer shuttle conveyor can be loaded manually or automatically, loaded from a conveyor, and loaded from a bag system.

Once loaded, the shuttle will attempt to load a washer that meets the processing needs of the items on the shuttle conveyor. The load dryer shuttle conveyor can be loaded manually or loaded from a washer. Once loaded, the shuttle will attempt to load a dryer or no-dry station that meets the processing needs of the items on the shuttle conveyor. For No-dry/bypass conveyors, a dryer classification from 60 to 69 will allow all shuttles to respond. Dryer classifications 70 to 79 will allow only negative end shuttles to respond. Dryer classifications 80 to 89 will allow only positive shuttles to respond.

Automatic operation may be exited by pressing the [CLR] and [ENT] keys simultaneously. The shuttle control display should respond by displaying the System Restart Menu.

Additionally, if any of the safeties are interrupted during automatic operation, the system will exit automatic operation and display the fault. After fixing the fault, the shuttle control display should respond by displaying the System Restart Menu.

When the system is in automatic, turning the Load Shuttle switch on the side of the loading position podium to the on position causes the shuttle to come to the loading position when its conveyor is empty.

Alternatively, pressing and holding the [NO] and [ENT] keys simultaneously from either keypad will also cause the shuttle to come to the loading position. If the Database ID = 255, the shuttle will travel to its programmed loading position, retract the conveyor bed and prompt the operator for the item code of the desired load. When the shuttle is in the load position the up arrow key may be used to move the conveyor belt while loading. When loaded, pressing the [YES] and [NO] keys simultaneously will end the loading sequence.

If the Database ID = 0, when the conveyor is loaded the AutoPulse data record should be entered. The data record entry menu is outlined below.

1 = Wash Process Data
Selects washer process data for entry
Class # =: Key in Wash Class
Formula # =: Key in Wash Formula

2 = Dry Process Data
Selects dryer process data for entry
Class # =: Key in Dryer Class
Formula # =: Key in Dryer Formula

3 = Item Specific Data
Selects item specific data for entry
Item #: Key in Item Number
Lot #: Key in Lot Number
Customer #: Key in Customer Number
Count: Key in Item Count
Weight: Key in Item Weight
Destination: Key in Post. Dest.
After the AutoPulse data record has been entered press the [YES] and [NO] keys simultaneously for the shuttle to accept the load.

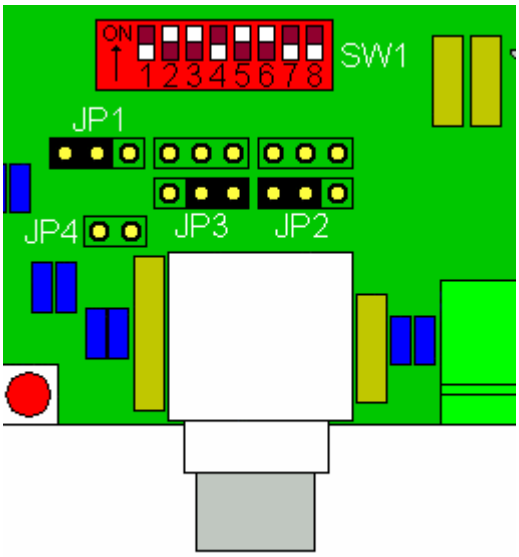
Suspend Motion
The automatic movement of the shuttle may be suspended by pressing the stop button (not the Emergency Stops). When the shuttle is in this state, all other equipment remains in automatic mode. The shuttle conveyor belts are the only things on the shuttle that are allowed to move while movement is suspended. To resume normal automatic operation the start automatic button is pressed. The shuttle will sound its buzzer and flash its lights for 10 seconds before resuming automatic movements.

Shuttle Communications
The shuttle communicates over an ArcNet network to a remote podium with an ARCFIBER card located in slot 5 and to the ModHub ARCFIBER card located in slot 6. The ARCFIBER cards contain an ArcNet Media. The ArcNet Media controller can drive three different types media depending on the jumper configuration. One ArcNet Media is Twisted-pair Communication (TP). To use the TP communications, the card must be jumpered as follows; viewing the ARCFIBER name to your right, JP1 need pins 1 and 2 jumped. JP2 needs both sets of pins 1 and 2 jumped. JP3 needs both sets of pins 1 and 2 jumped. Please note, that if the machine is at the end of the communication loop, JP5 needs to be jumped also.

The second ArcNet Media is COAX Communication. This type of media is not used on shuttles using a festoon type electrical connection.

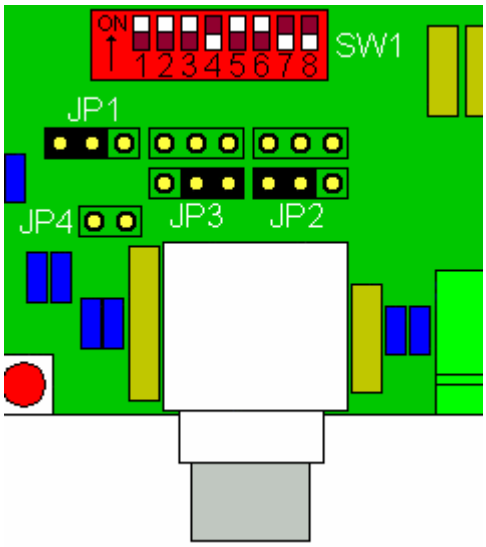
The final ArcNet Media is Fiber Optic Communication (FO). To use the FO communications, the card must be jumpered as follows: viewing the ARCFIBER name to your right, JP1 need pins 2 and 3 jumped, JP2 needs the top set of pins 2 and 3 jumped, and JP3 needs the top set of pins 1 and 2 jumped. Software must configure the ArcNet controller for back plane mode to properly transmit and receive.

On systems where the machine is connected to a PulseNet network, this board needs to be set so that each individual machine establishes its own identity that is known as the Node ID. To do this the ARCFIBER card needs to be set up. The Node ID for the board is setup by setting the 8-position Dipswitch to the proper binary code representing the particular node number from 0 to 255. The switches are numbered 1 through 8 with 1 being the least significant bit of the node. The ON position represents a logic 0, the OFF position represents logic 1. For example, shuttle ID numbers generally start with ID 201 for the Negative end shuttle and 202 for the Positive end shuttle. To set the node ID as 201 first convert the decimal to binary, then determine the switch positions. The following example is an ARCFIBER card set for the Fiber Optic Communication method with an ID of 201.



Switch #	1	2	3	4	5	6	7	8
Decimal	1	2	4	8	16	32	64	128
Binary	Off	On	On	Off	On	On	Off	Off

Both ARCFIBER cards (slot 5 and 6) should be set to the same identification number. The slot 6 card in the Podium should be connected to the slot 5 card in the shuttle. The ID for the Podium should be one less than the shuttle. Meaning, if the shuttle ID is set for 201, the Podium ID must be 200. Please view the following example:



Manual Operation (Pushbuttons)
The shuttle may be operated in full manual mode. To perform this task, press the Suspend pushbutton (PB). Switch the Auto/Manual selector switch to Manual. In this mode, you may press the Function PB and the corresponding pushbutton to perform certain tasks.

Pressing the Function plus Move Negative to move the shuttle in the Negative direction.

Pressing the Function plus Move Positive to move the shuttle in the Positive direction.

Pressing the Function plus Conv. A to Wash retracts conveyor A toward the washers.

Pressing the Function plus Conv. A to Dryers extends conveyor A towards the dryers.

Pressing the Function plus Conv. A Belt to index the belt on conveyor A.

Pressing the Function plus Conv. B to Wash retracts conveyor B toward the washers.

Pressing the Function plus Conv. B to Dryers extends conveyor B towards the dryers.

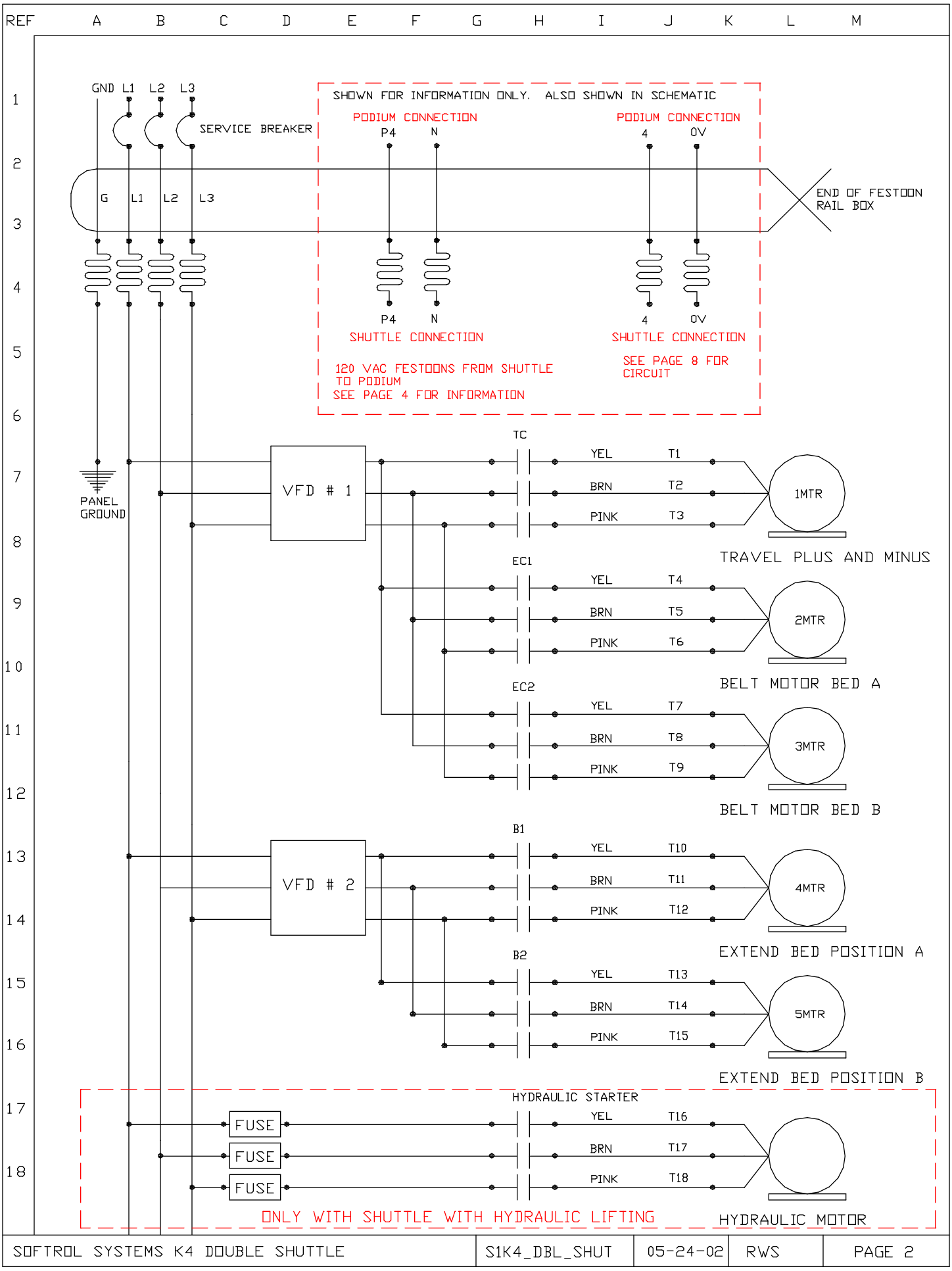
Pressing the Function plus Conv. B Belt to index the belt on conveyor B.

SOFTROL

Software & Control for Automation

4867 N. MAIN ST. - ACWORTH, GA 30101
PH: (770)974-2700 FAX:(770)974-0435

K4 DOUBLE SHUTTLE



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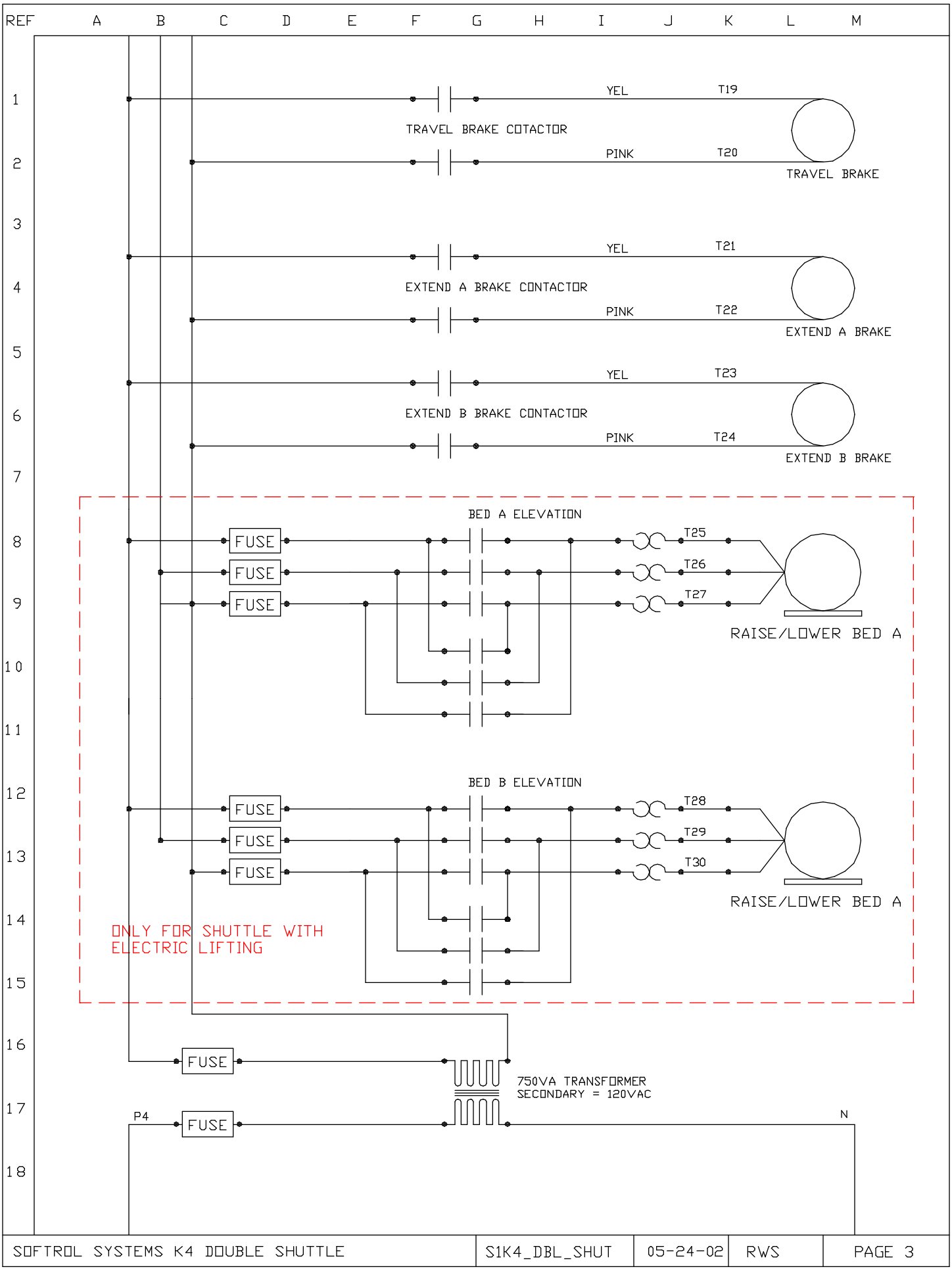

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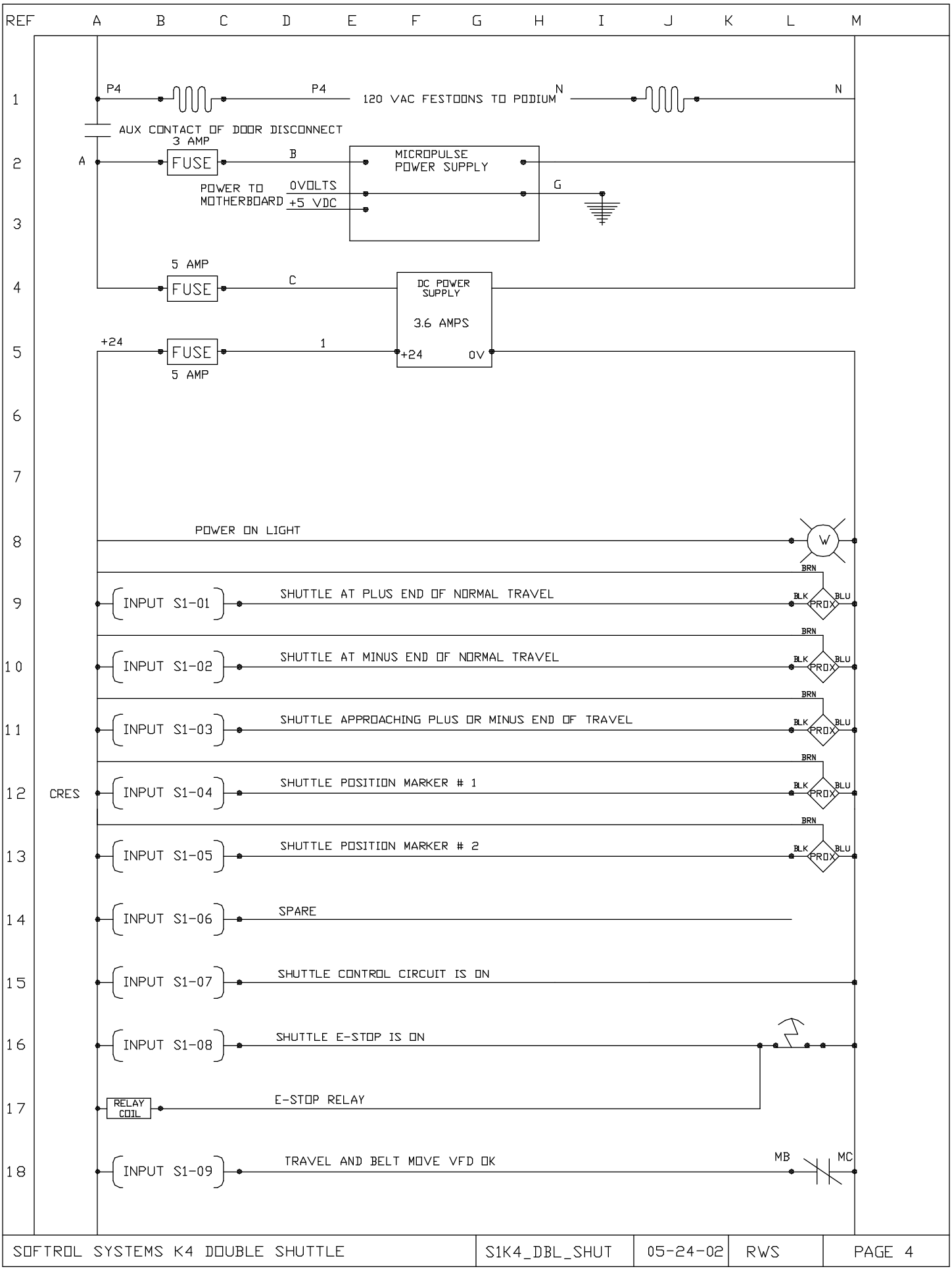

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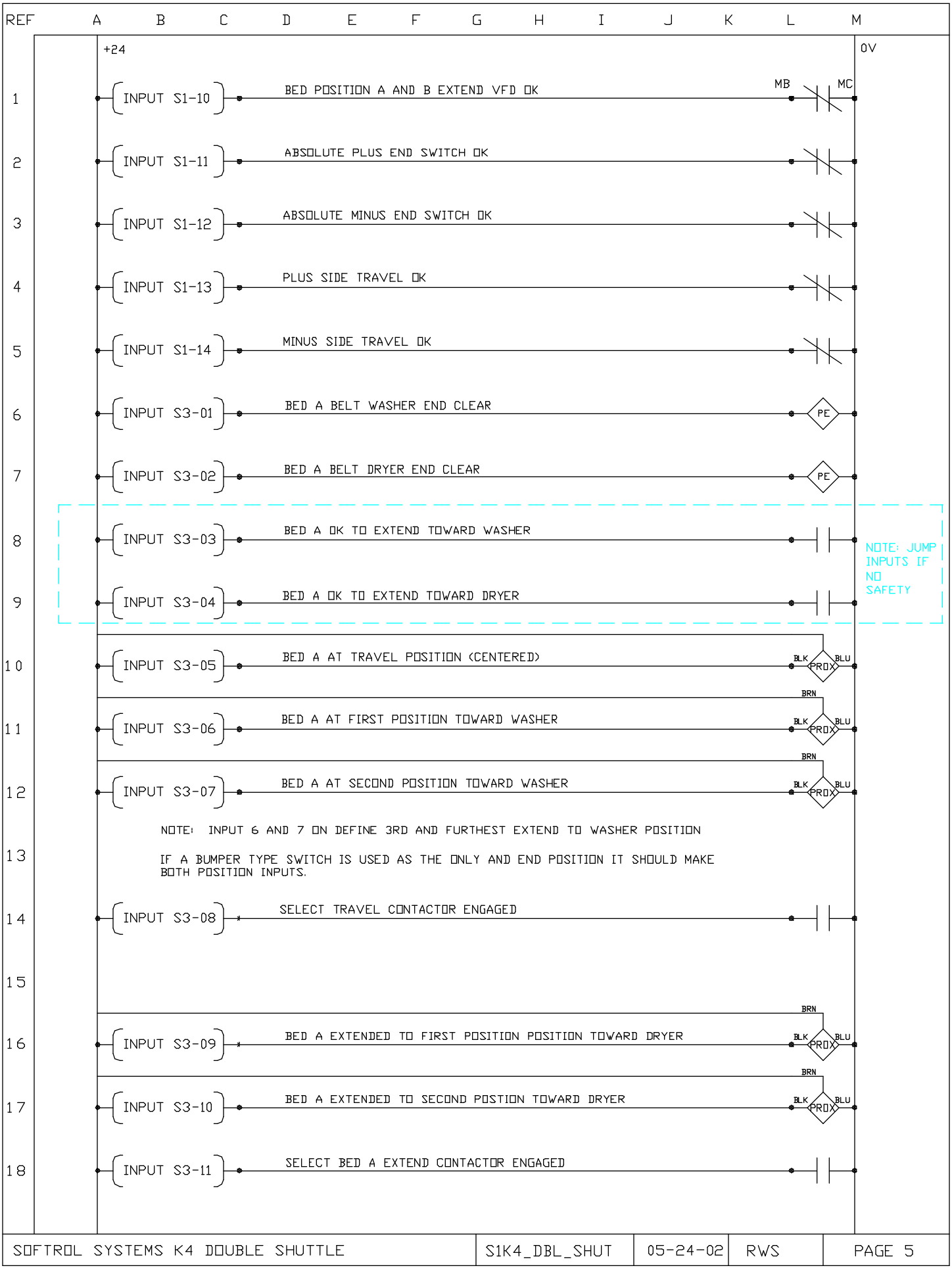
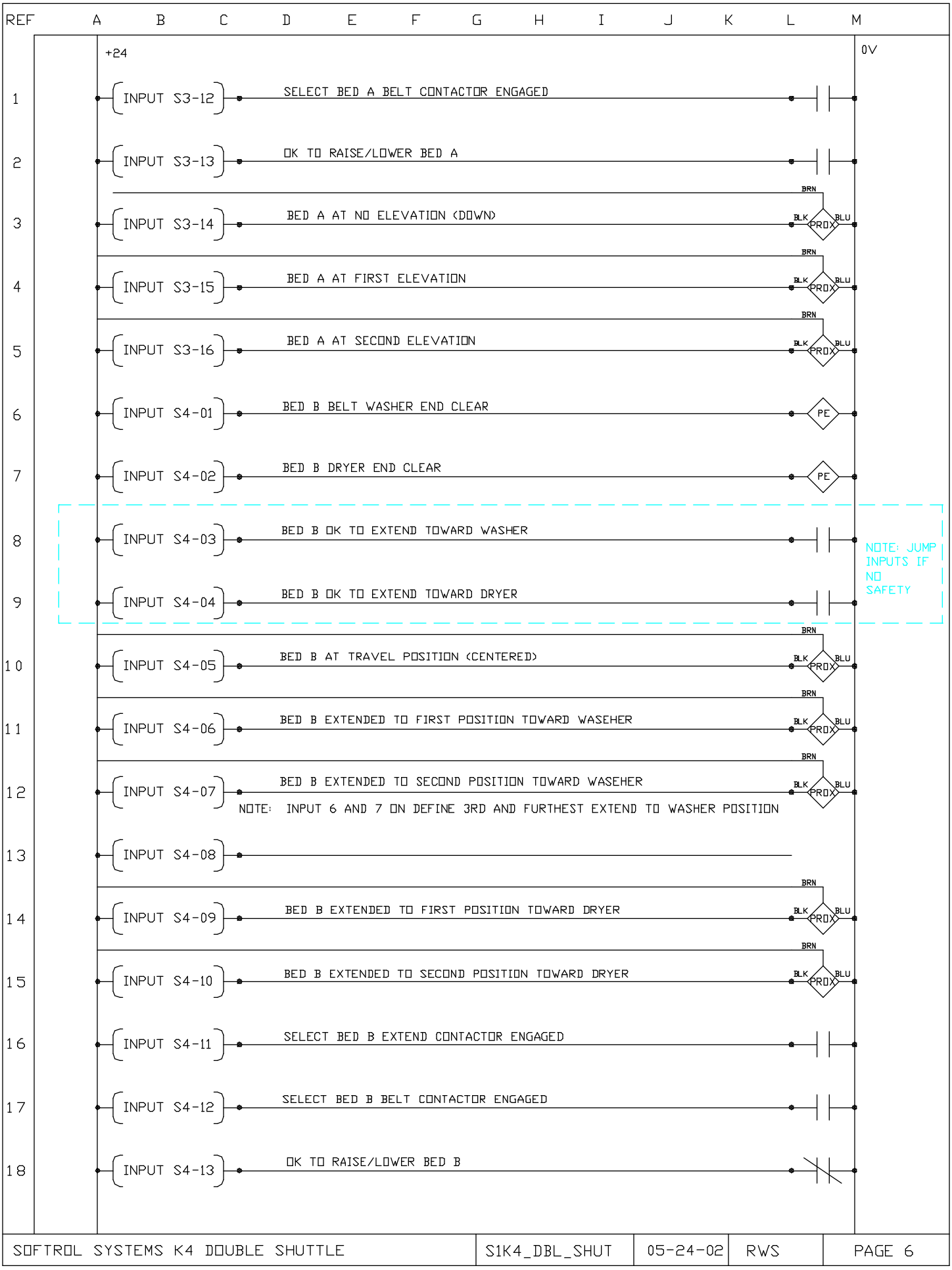
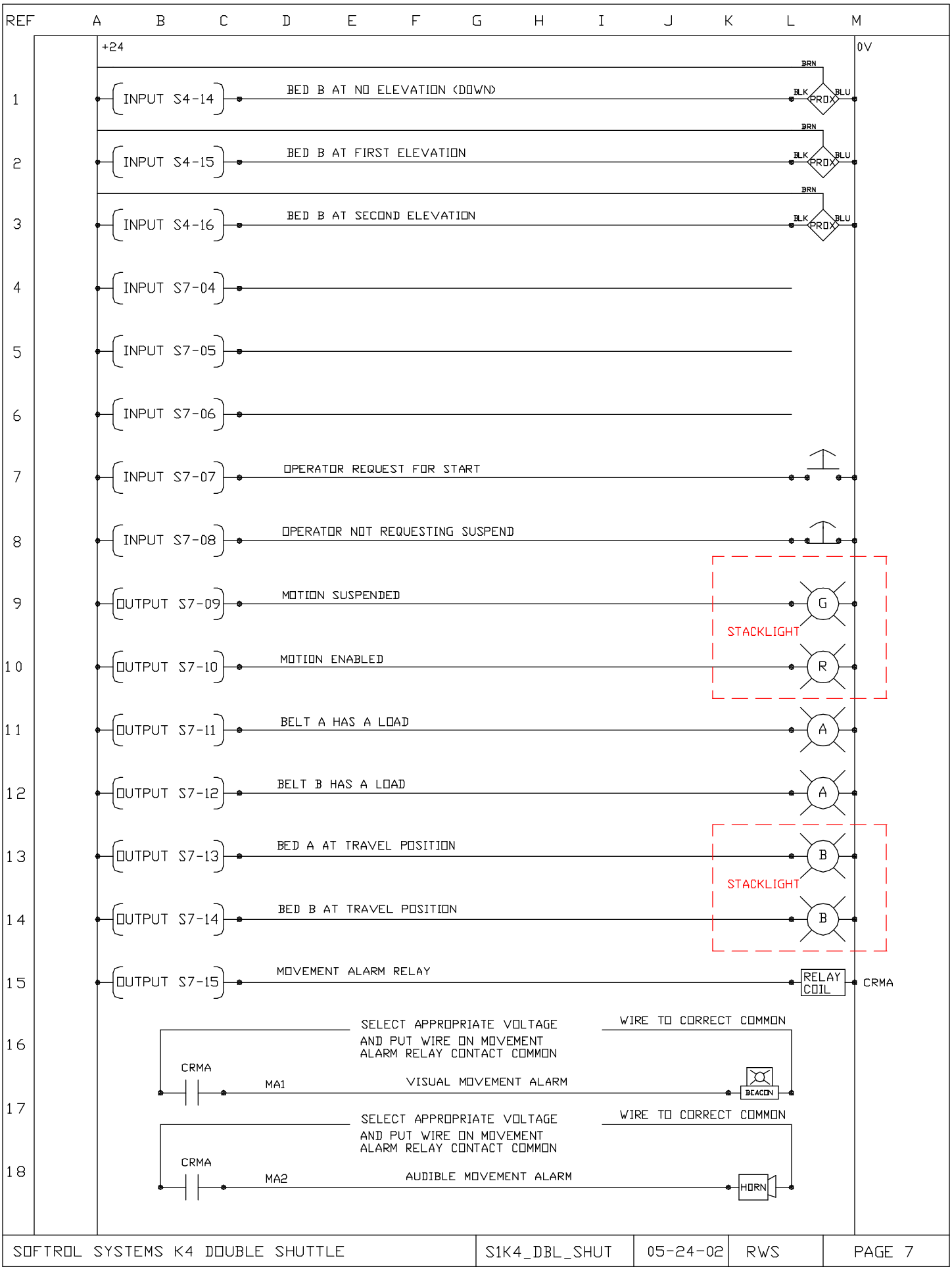

REF A B C D E F G H I J K L M
+24
0V
1 INPUT S1-10 BED POSITION A AND B EXTEND VFD OK MB MC
2 INPUT S1-11 ABSOLUTE PLUS END SWITCH OK
3 INPUT S1-12 ABSOLUTE MINUS END SWITCH OK
4 INPUT S1-13 PLUS SIDE TRAVEL OK
5 INPUT S1-14 MINUS SIDE TRAVEL OK
6 INPUT S3-01 BED A BELT WASHER END CLEAR PE
7 INPUT S3-02 BED A BELT DRYER END CLEAR PE
8 INPUT S3-03 BED A OK TO EXTEND TOWARD WASHER
9 INPUT S3-04 BED A OK TO EXTEND TOWARD DRYER
NOTE: JUMP INPUTS IF NO SAFETY
10 INPUT S3-05 BED A AT TRAVEL POSITION (CENTERED) BLK PROX BLU
11 INPUT S3-06 BED A AT FIRST POSITION TOWARD WASHER BRN BLK PROX BLU
12 INPUT S3-07 BED A AT SECOND POSITION TOWARD WASHER BRN BLK PROX BLU
NOTE: INPUT 6 AND 7 ON DEFINE 3RD AND FURTHEST EXTEND TO WASHER POSITION
13 IF A BUMPER TYPE SWITCH IS USED AS THE ONLY AND END POSITION IT SHOULD MAKE BOTH POSITION INPUTS.
14 INPUT S3-08 SELECT TRAVEL CONTACTOR ENGAGED
15
16 INPUT S3-09 BED A EXTENDED TO FIRST POSITION POSITION TOWARD DRYER BRN BLK PROX BLU
17 INPUT S3-10 BED A EXTENDED TO SECOND POSTION TOWARD DRYER BRN BLK PROX BLU
18 INPUT S3-11 SELECT BED A EXTEND CONTACTOR ENGAGED



SOFTROL SYSTEMS K4 DOUBLE SHUTTLE	S1K4_DBL_SHUT	05-24-02	RWS	PAGE 6



SOFTROL SYSTEMS K4 DOUBLE SHUTTLE	S1K4_DBL_SHUT	05-24-02	RWS	PAGE 7

SOFTROL AUTOPULSE

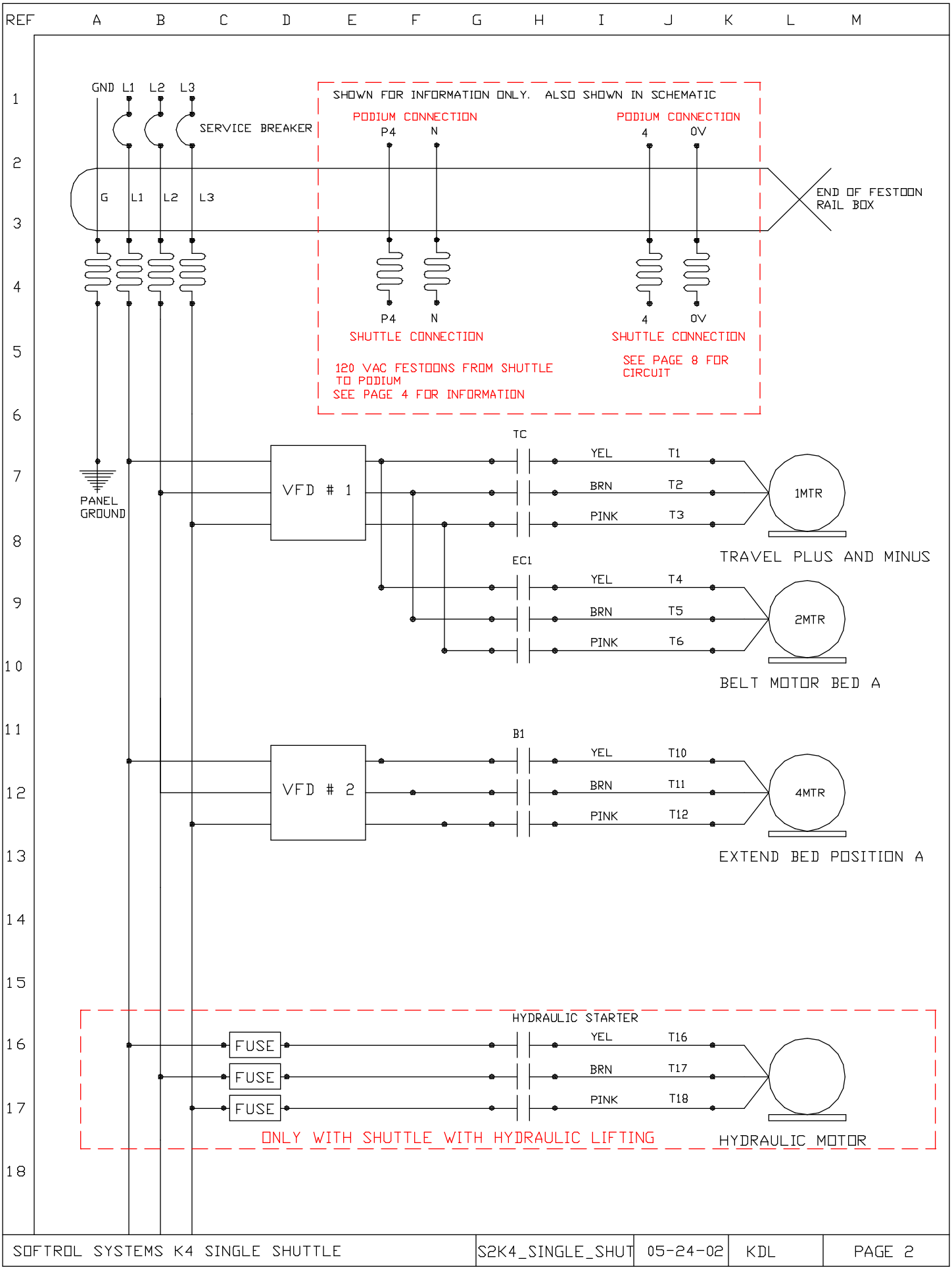
Notes:

SOFTROL

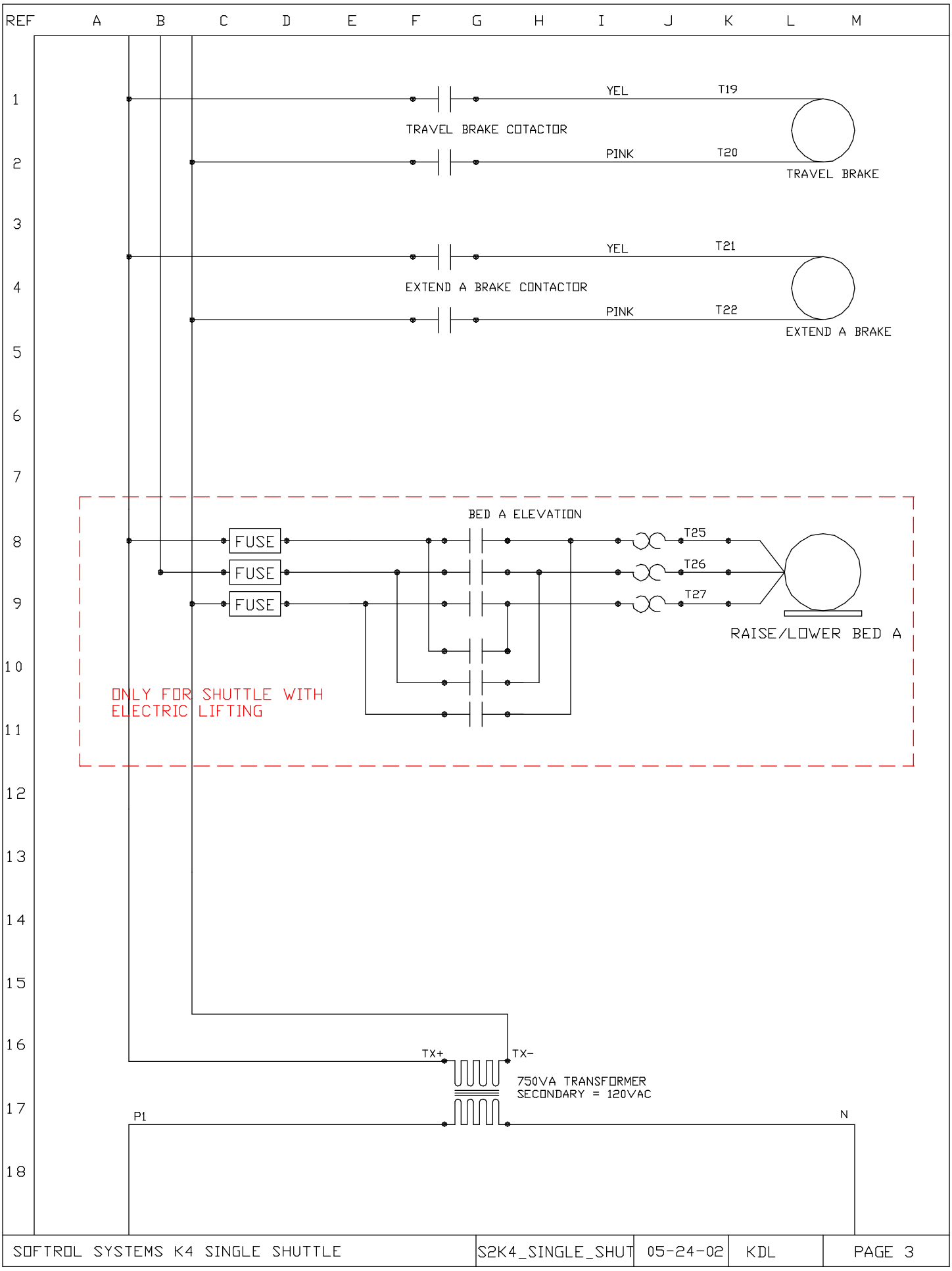
Software & Control for Automation

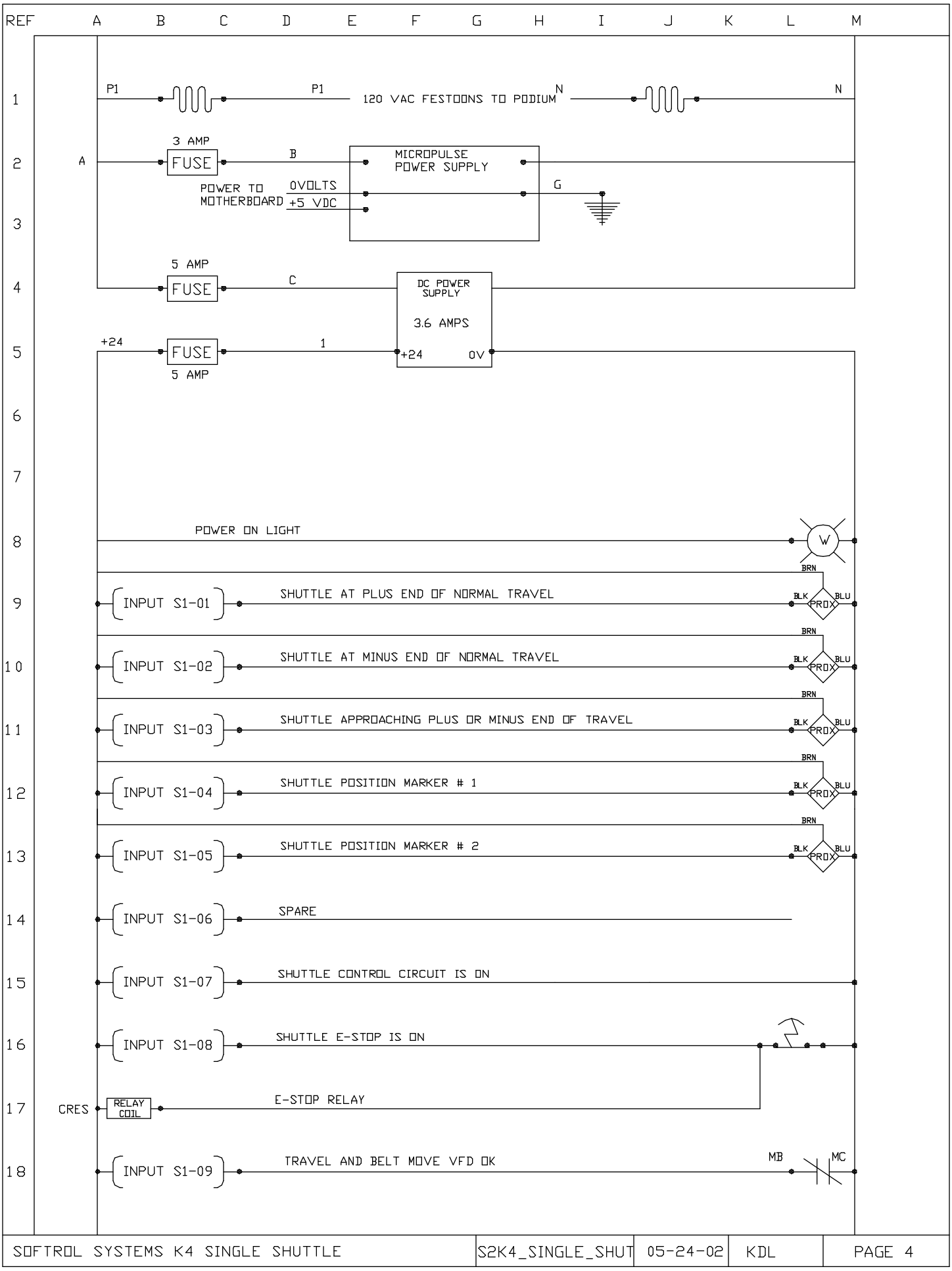
4867 N. MAIN ST. - ACWORTH, GA 30101
PH: (770)974-2700 FAX:(770)974-0435

K4 SINGLE SHUTTLE

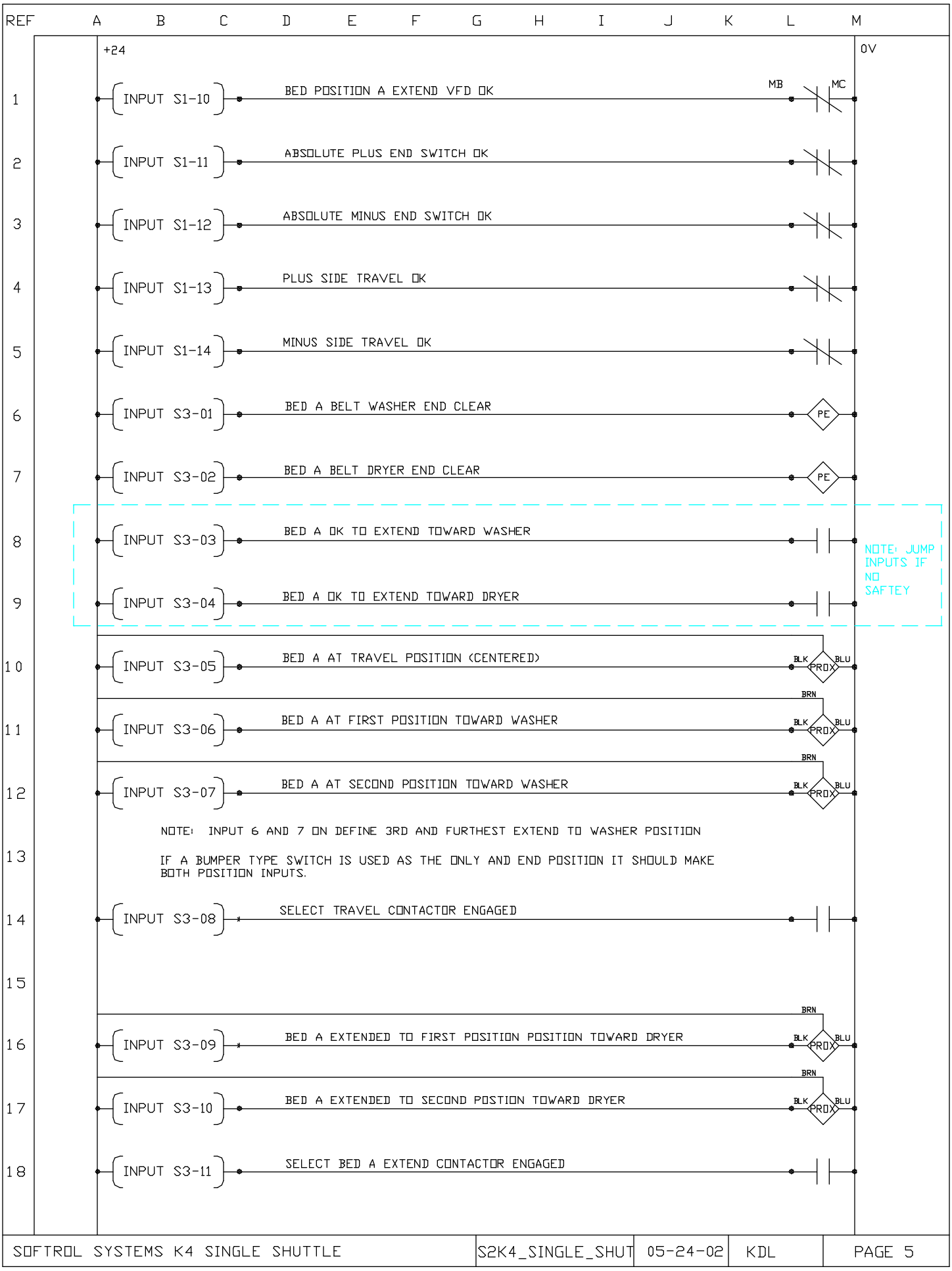


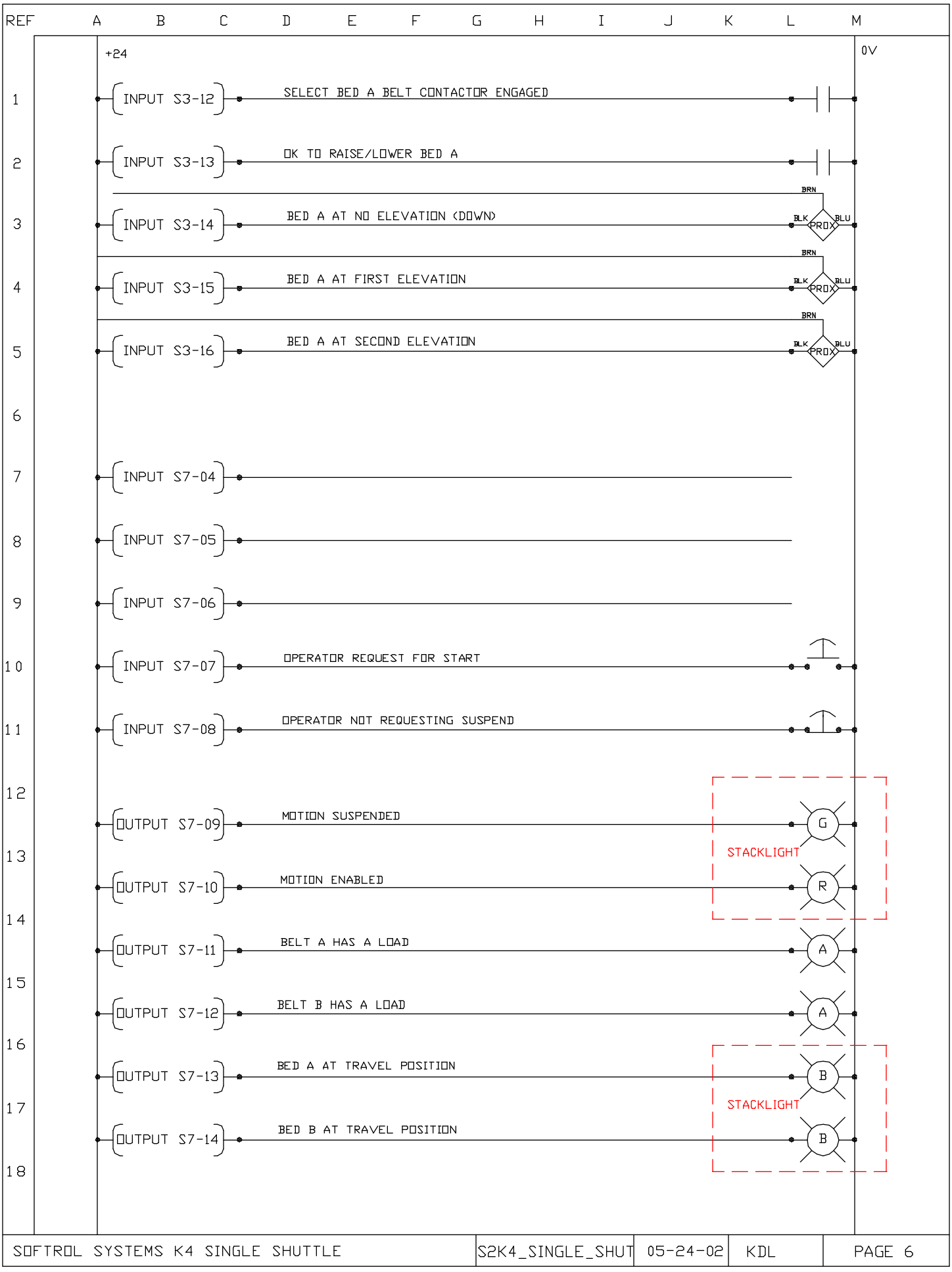
SOFTROL SYSTEMS K4 SINGLE SHUTTLE	S2K4_SINGLE_SHUT	05-24-02	KDL	PAGE 2

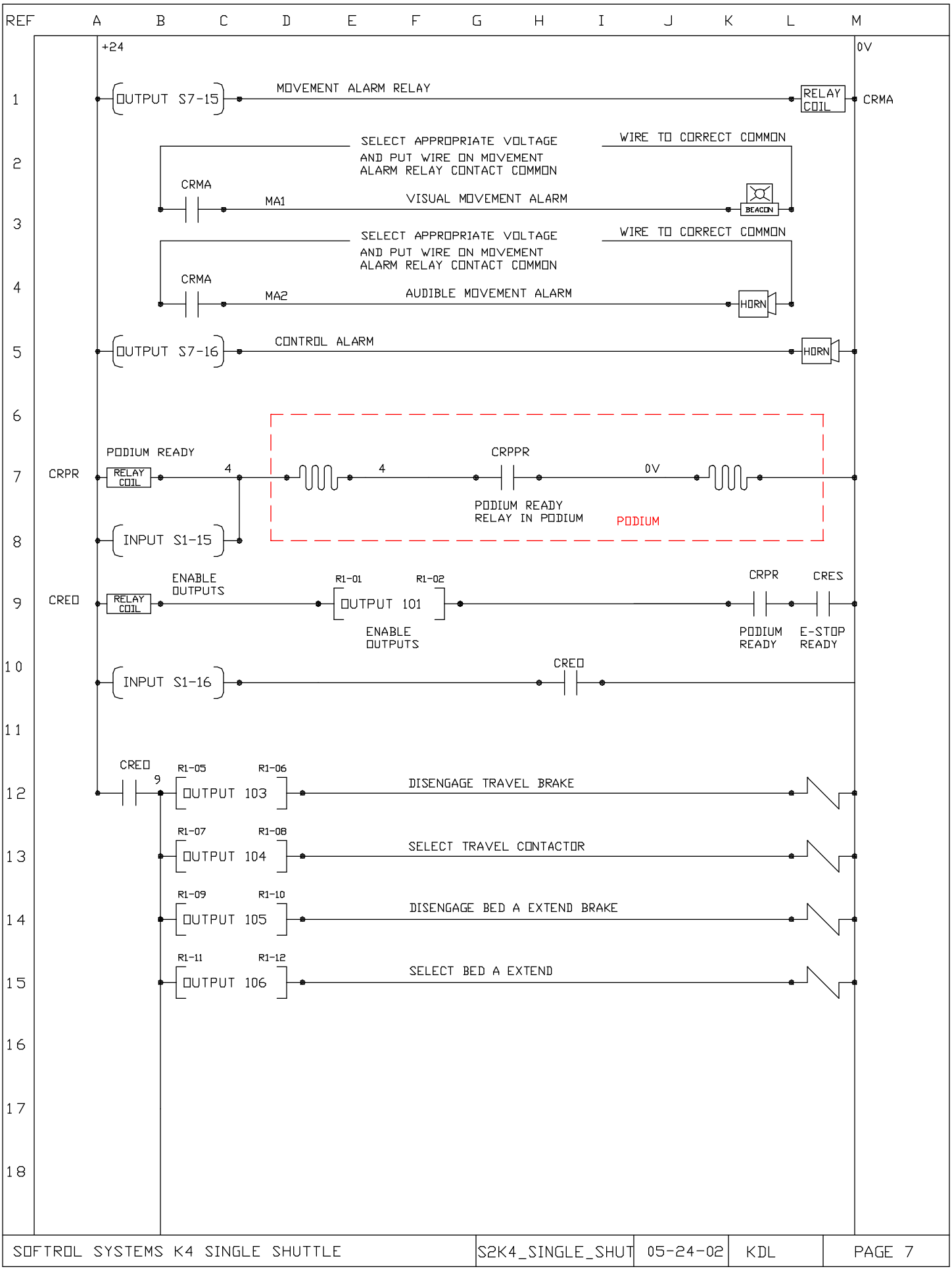

REF A B C D E F G H I J K L M
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
YEL
T19
TRAVEL BRAKE COTACTOR
PINK
T20
TRAVEL BRAKE
YEL
T21
EXTEND A BRAKE CONTACTOR
PINK
T22
EXTEND A BRAKE
BED A ELEVATION
FUSE
FUSE
FUSE
T25
T26
T27
RAISE/LOWER BED A
ONLY FOR SHUTTLE WITH
ELECTRIC LIFTING
TX+
TX-
750VA TRANSFORMER
SECONDARY = 120VAC
P1
N
SOFTROL SYSTEMS K4 SINGLE SHUTTLE
S2K4_SINGLE_SHUT
05-24-02
KDL
PAGE 3

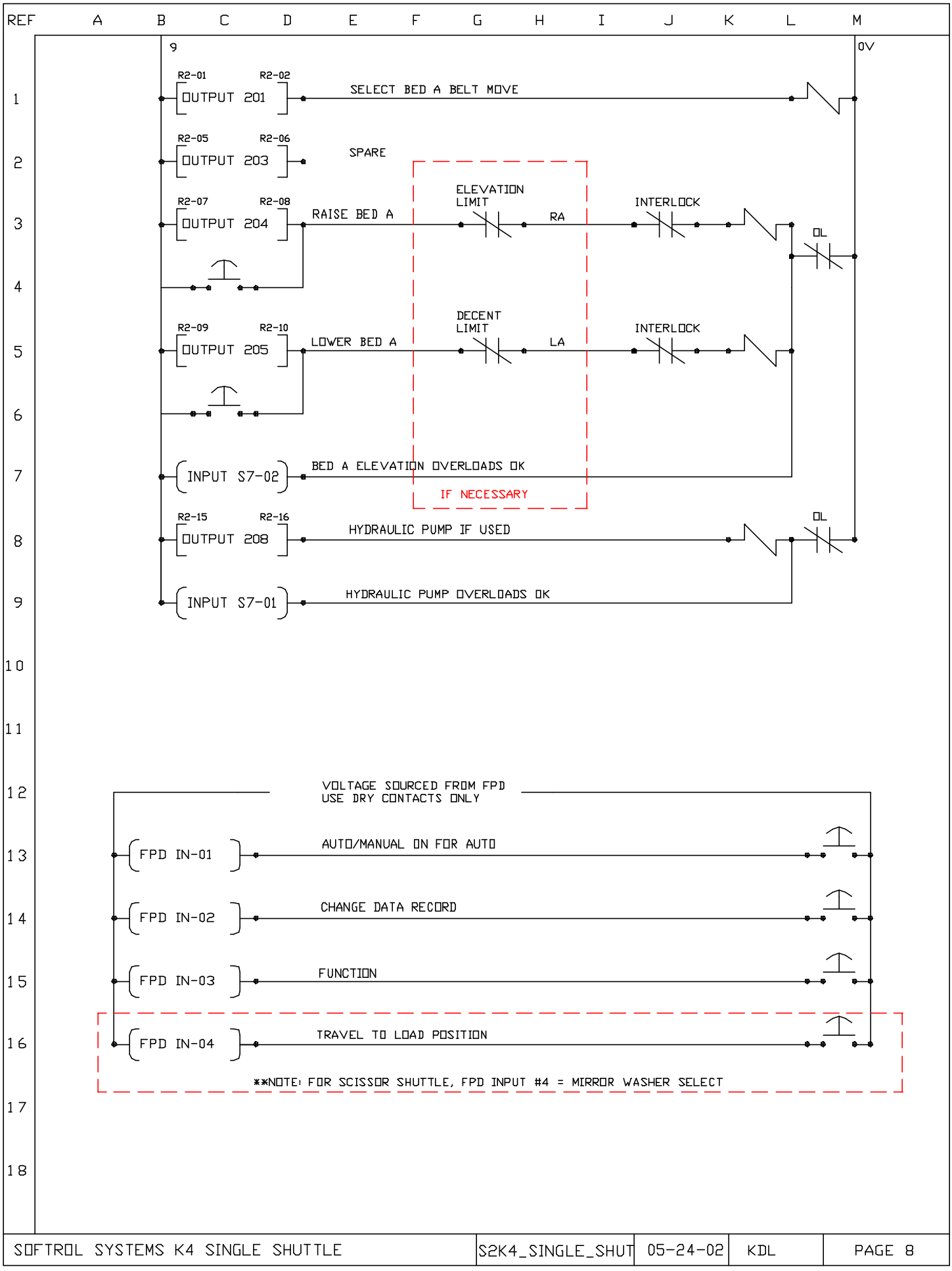


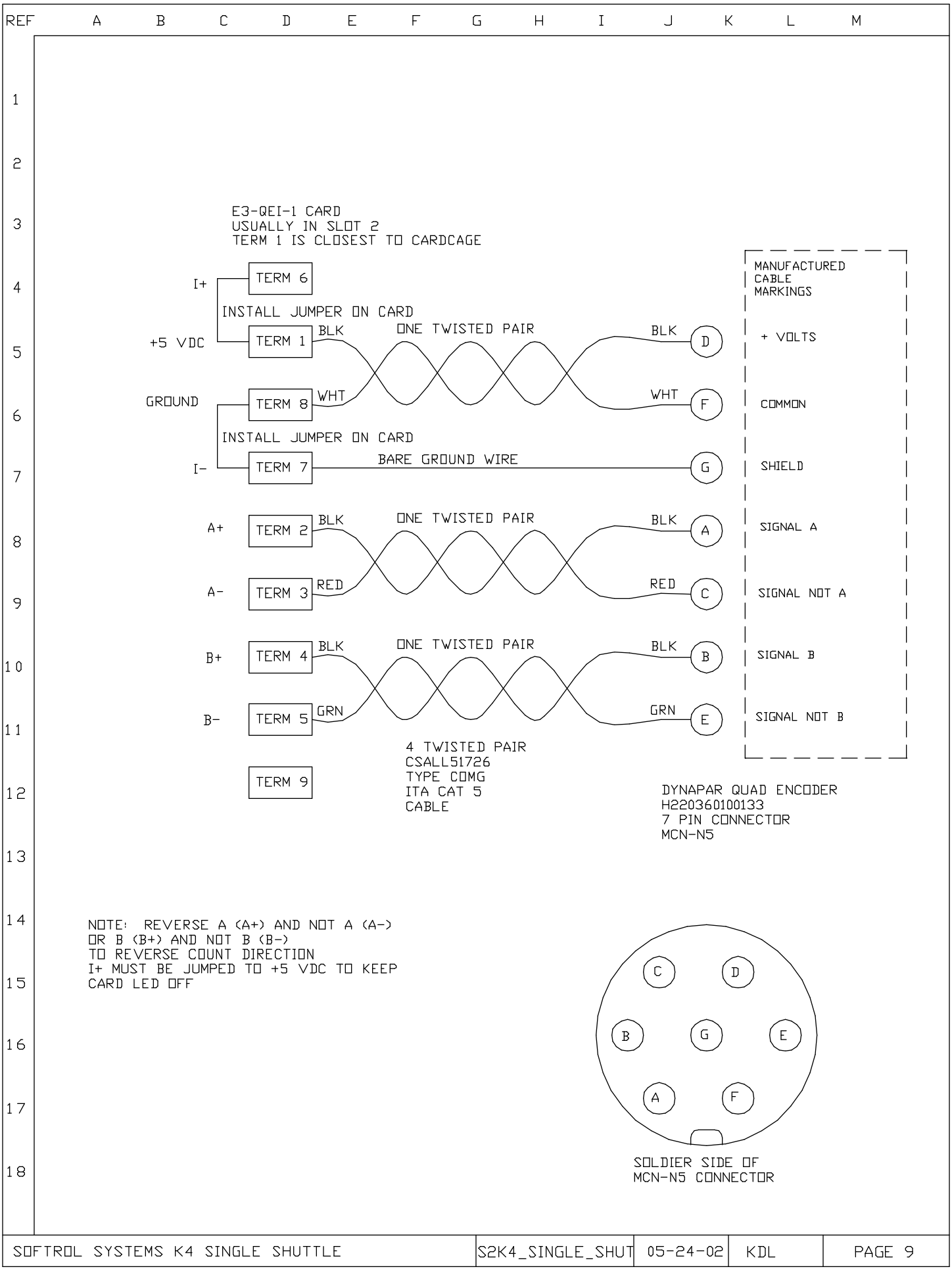
SOFTROL SYSTEMS K4 SINGLE SHUTTLE	S2K4_SINGLE_SHUT	05-24-02	KDL	PAGE 4

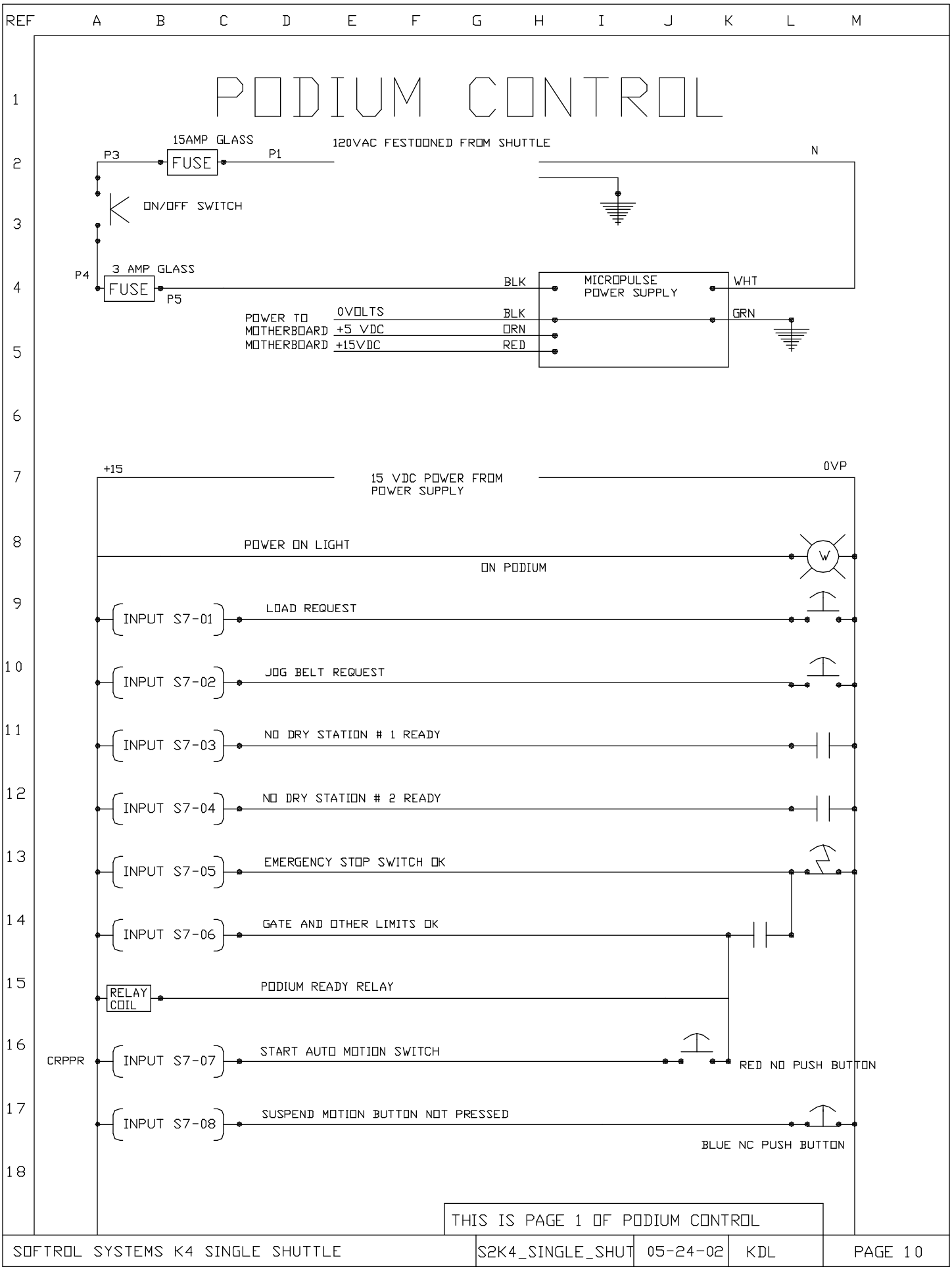

REF A B C D E F G H I J K L M
+24
0V
1 INPUT S1-10 BED POSITION A EXTEND VFD OK MB MC
2 INPUT S1-11 ABSOLUTE PLUS END SWITCH OK
3 INPUT S1-12 ABSOLUTE MINUS END SWITCH OK
4 INPUT S1-13 PLUS SIDE TRAVEL OK
5 INPUT S1-14 MINUS SIDE TRAVEL OK
6 INPUT S3-01 BED A BELT WASHER END CLEAR PE
7 INPUT S3-02 BED A BELT DRYER END CLEAR PE
8 INPUT S3-03 BED A OK TO EXTEND TOWARD WASHER
9 INPUT S3-04 BED A OK TO EXTEND TOWARD DRYER
NOTE: JUMP INPUTS IF NO SAFTEY
10 INPUT S3-05 BED A AT TRAVEL POSITION (CENTERED) BLK PROX BLU
11 INPUT S3-06 BED A AT FIRST POSITION TOWARD WASHER BRN BLK PROX BLU
12 INPUT S3-07 BED A AT SECOND POSITION TOWARD WASHER BRN BLK PROX BLU
NOTE: INPUT 6 AND 7 ON DEFINE 3RD AND FURTHEST EXTEND TO WASHER POSITION
13 IF A BUMPER TYPE SWITCH IS USED AS THE ONLY AND END POSITION IT SHOULD MAKE BOTH POSITION INPUTS.
14 INPUT S3-08 * SELECT TRAVEL CONTACTOR ENGAGED
15
16 INPUT S3-09 * BED A EXTENDED TO FIRST POSITION POSITION TOWARD DRYER BRN BLK PROX BLU
17 INPUT S3-10 BED A EXTENDED TO SECOND POSTION TOWARD DRYER BRN BLK PROX BLU
18 INPUT S3-11 SELECT BED A EXTEND CONTACTOR ENGAGED

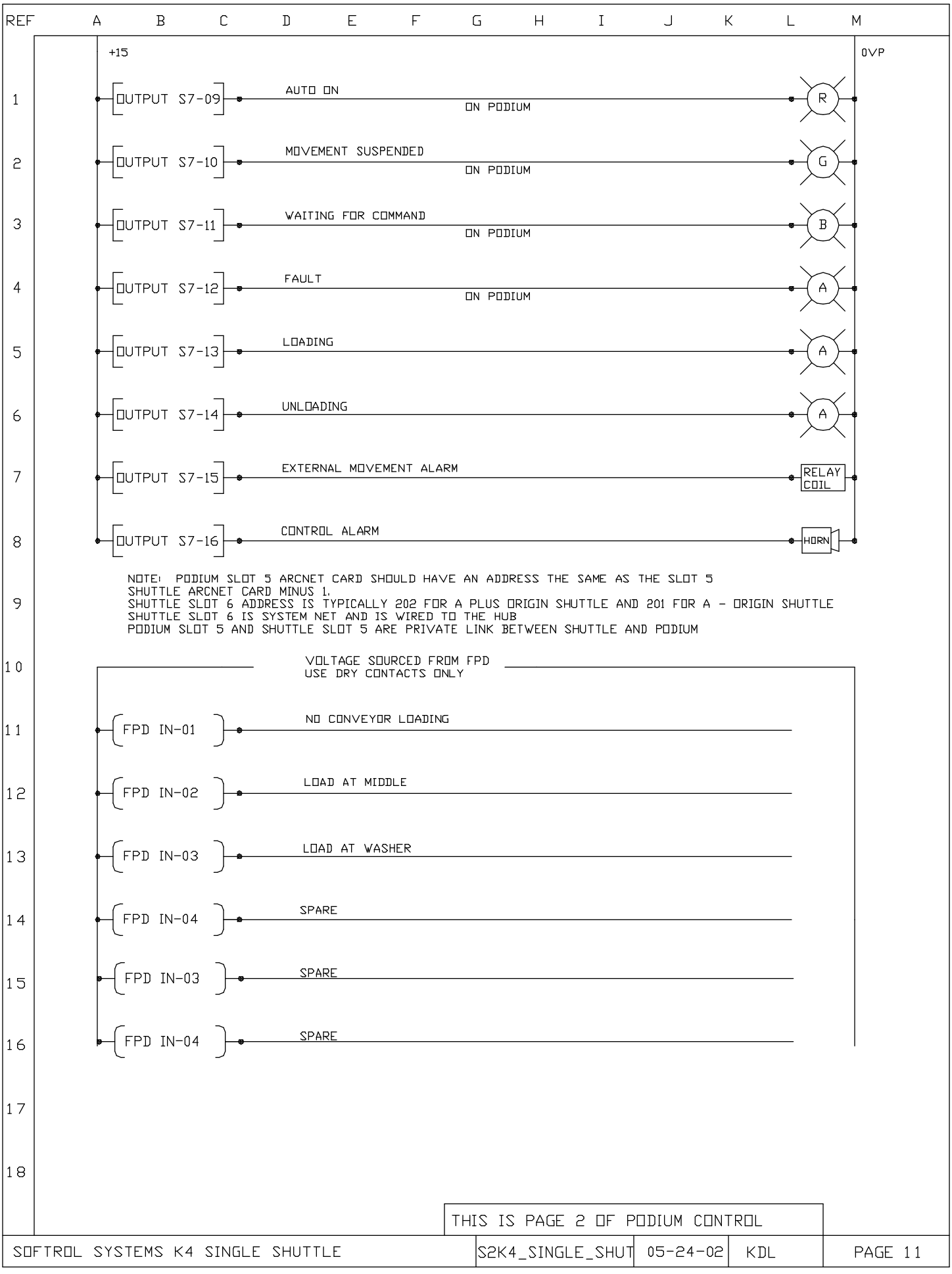

REF
A
B
C
D
E
F
G
H
I
J
K
L
M
+24
0V
1
INPUT S3-12
SELECT BED A BELT CONTACTOR ENGAGED
2
INPUT S3-13
OK TO RAISE/LOWER BED A
3
INPUT S3-14
BED A AT NO ELEVATION (DOWN)
BRN
BLK
PROX
BLU
4
INPUT S3-15
BED A AT FIRST ELEVATION
BRN
BLK
PROX
BLU
5
INPUT S3-16
BED A AT SECOND ELEVATION
BRN
BLK
PROX
BLU
6
7
INPUT S7-04
8
INPUT S7-05
9
INPUT S7-06
10
INPUT S7-07
OPERATOR REQUEST FOR START
11
INPUT S7-08
OPERATOR NOT REQUESTING SUSPEND
12
OUTPUT S7-09
MOTION SUSPENDED
G
STACKLIGHT
13
OUTPUT S7-10
MOTION ENABLED
R
14
OUTPUT S7-11
BELT A HAS A LOAD
A
15
OUTPUT S7-12
BELT B HAS A LOAD
A
16
OUTPUT S7-13
BED A AT TRAVEL POSITION
B
STACKLIGHT
17
OUTPUT S7-14
BED B AT TRAVEL POSITION
B
18


REF
A
B
C
D
E
F
G
H
I
J
K
L
M
+24
0V
1
OUTPUT S7-15
MOVEMENT ALARM RELAY
RELAY COIL
CRMA
2
SELECT APPROPRIATE VOLTAGE
AND PUT WIRE ON MOVEMENT
ALARM RELAY CONTACT COMMON
WIRE TO CORRECT COMMON
CRMA
MA1
VISUAL MOVEMENT ALARM
BEACON
3
SELECT APPROPRIATE VOLTAGE
AND PUT WIRE ON MOVEMENT
ALARM RELAY CONTACT COMMON
WIRE TO CORRECT COMMON
4
CRMA
MA2
AUDIBLE MOVEMENT ALARM
HORN
5
OUTPUT S7-16
CONTROL ALARM
HORN
6
7
CRPR
PODIUM READY
RELAY COIL
4
4
CRPPR
0V
PODIUM READY
RELAY IN PODIUM
PODIUM
8
INPUT S1-15
9
CRED
RELAY COIL
ENABLE
OUTPUTS
R1-01
R1-02
OUTPUT 101
ENABLE
OUTPUTS
CRPR
CRES
PODIUM
READY
E-STOP
READY
10
INPUT S1-16
CRED
11
12
CRED
9
R1-05
R1-06
OUTPUT 103
DISENGAGE TRAVEL BRAKE
13
R1-07
R1-08
OUTPUT 104
SELECT TRAVEL CONTACTOR
14
R1-09
R1-10
OUTPUT 105
DISENGAGE BED A EXTEND BRAKE
15
R1-11
R1-12
OUTPUT 106
SELECT BED A EXTEND
16
17
18

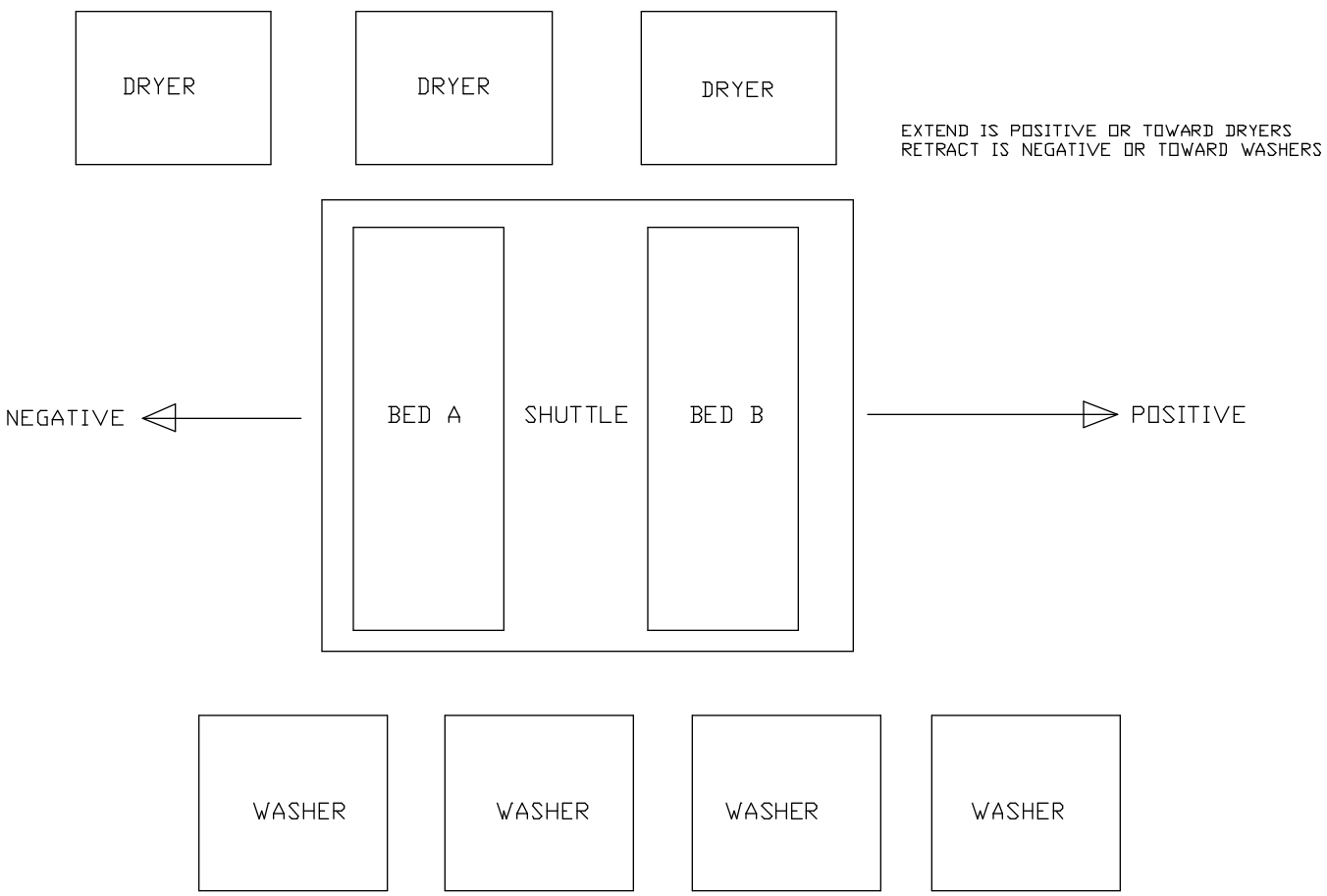

REF A B C D E F G H I J K L M
9
0V
R2-01
R2-02
OUTPUT 201
SELECT BED A BELT MOVE
R2-05
R2-06
OUTPUT 203
SPARE
R2-07
R2-08
OUTPUT 204
RAISE BED A
ELEVATION LIMIT
RA
INTERLOCK
OL
R2-09
R2-10
OUTPUT 205
LOWER BED A
DECENT LIMIT
LA
INTERLOCK
INPUT S7-02
BED A ELEVATION OVERLOADS OK
IF NECESSARY
R2-15
R2-16
OUTPUT 208
HYDRAULIC PUMP IF USED
OL
INPUT S7-01
HYDRAULIC PUMP OVERLOADS OK
VOLTAGE SOURCED FROM FPD
USE DRY CONTACTS ONLY
FPD IN-01
AUTO/MANUAL ON FOR AUTO
FPD IN-02
CHANGE DATA RECORD
FPD IN-03
FUNCTION
FPD IN-04
TRAVEL TO LOAD POSITION
**NOTE: FOR SCISSOR SHUTTLE, FPD INPUT #4 = MIRROR WASHER SELECT


REF A B C D E F G H I J K L M
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E3-QEI-1 CARD
USUALLY IN SLOT 2
TERM 1 IS CLOSEST TO CARDCAGE
I+
TERM 6
INSTALL JUMPER ON CARD
+5 VDC
TERM 1
BLK
ONE TWISTED PAIR
BLK
D
GROUND
TERM 8
WHT
WHT
F
INSTALL JUMPER ON CARD
I-
TERM 7
BARE GROUND WIRE
G
A+
TERM 2
BLK
ONE TWISTED PAIR
BLK
A
A-
TERM 3
RED
RED
C
B+
TERM 4
BLK
ONE TWISTED PAIR
BLK
B
B-
TERM 5
GRN
GRN
E
TERM 9
4 TWISTED PAIR
CSALL51726
TYPE COMG
ITA CAT 5
CABLE
MANUFACTURED
CABLE
MARKINGS
+ VOLTS
COMMON
SHIELD
SIGNAL A
SIGNAL NOT A
SIGNAL B
SIGNAL NOT B
DYNAPAR QUAD ENCODER
H220360100133
7 PIN CONNECTOR
MCN-N5
NOTE: REVERSE A (A+) AND NOT A (A-)
OR B (B+) AND NOT B (B-)
TO REVERSE COUNT DIRECTION
I+ MUST BE JUMPED TO +5 VDC TO KEEP
CARD LED OFF
C
D
B
G
E
A
F
SOLDIER SIDE OF
MCN-N5 CONNECTOR


REF A B C D E F G H I J K L M
PODIUM CONTROL
15AMP GLASS
P3
FUSE
P1
120VAC FESTOONED FROM SHUTTLE
N
ON/OFF SWITCH
P4
3 AMP GLASS
FUSE
P5
BLK
MICROPULSE
POWER SUPPLY
WHT
POWER TO
MOTHERBOARD
0VOLTS
+5 VDC
+15VDC
BLK
ORN
RED
GRN
+15
15 VDC POWER FROM
POWER SUPPLY
0VP
POWER ON LIGHT
ON PODIUM
W
INPUT S7-01
LOAD REQUEST
INPUT S7-02
JOG BELT REQUEST
INPUT S7-03
NO DRY STATION # 1 READY
INPUT S7-04
NO DRY STATION # 2 READY
INPUT S7-05
EMERGENCY STOP SWITCH OK
INPUT S7-06
GATE AND OTHER LIMITS OK
RELAY
COIL
PODIUM READY RELAY
CRPPR
INPUT S7-07
START AUTO MOTION SWITCH
RED NO PUSH BUTTON
INPUT S7-08
SUSPEND MOTION BUTTON NOT PRESSED
BLUE NC PUSH BUTTON
THIS IS PAGE 1 OF PODIUM CONTROL
SOFTROL SYSTEMS K4 SINGLE SHUTTLE
S2K4_SINGLE_SHUT
05-24-02
KDL
PAGE 10

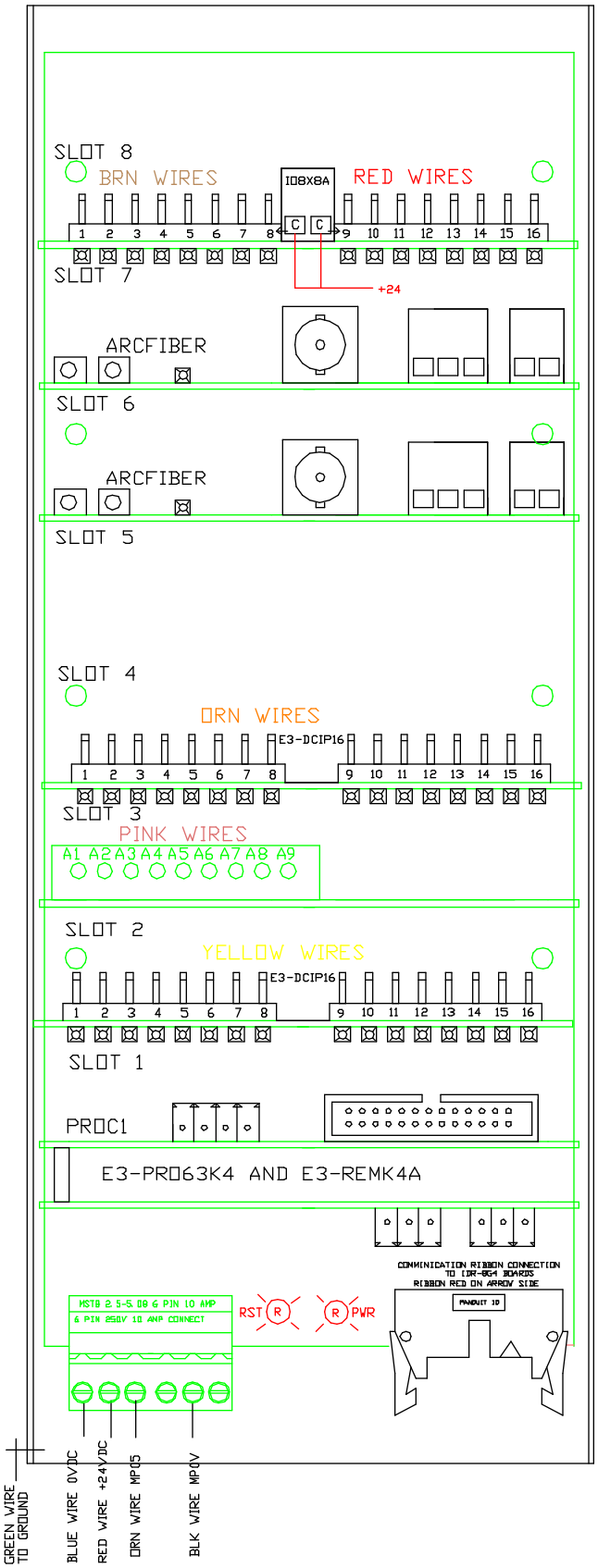


THIS IS PAGE 2 OF PODIUM CONTROL

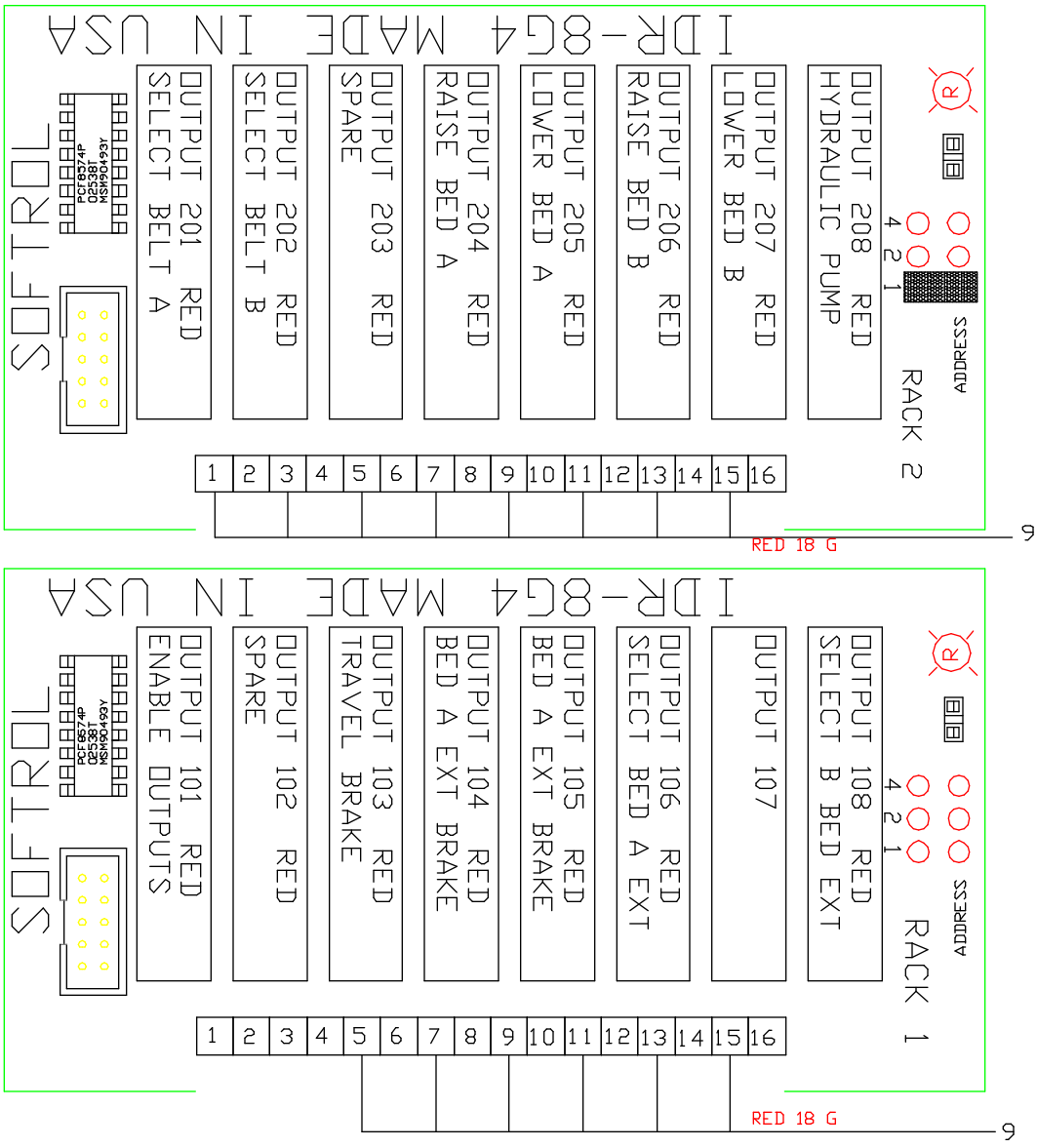


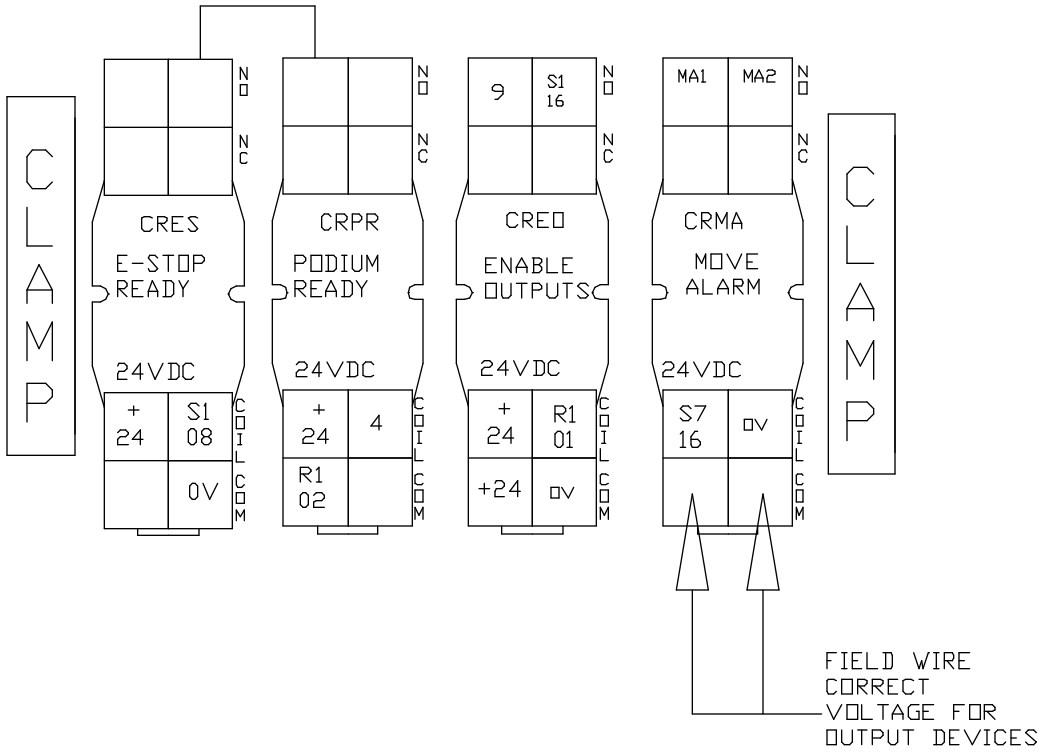
BED A CAN BE A LOAD WASHER OR A LOAD DRYER CONVEYOR
BED B CAN BE A LOAD WASHER OR A LOAD DRYER CONVEYOR
SINGLE SHUTTLE IS ALWAYS BED A
SHUTTLE MOVEMENTS ARE DEFINED AS POSITIVE OR NEGATIVE
VFD FORWARD MOVES THE SHUTTLE POSITIVE
BED EXTEND AND RETRACT ARE DEFINED AS TOWARD WASHER OR TOWARD DRYER
VFD FORWARD MOVES BED TOWARD WASHER
BELT MOVEMENT IS DEFINED AS FORWARD OR REVERSE
VFD FORWARD MOVES BELT TOWARD DISCHARGE END

NOTE: INPUTS 1 - 3 ARE SET WITH JUMPERS AT START UP TO DESCRIBE SHUTTLE FUNCTION

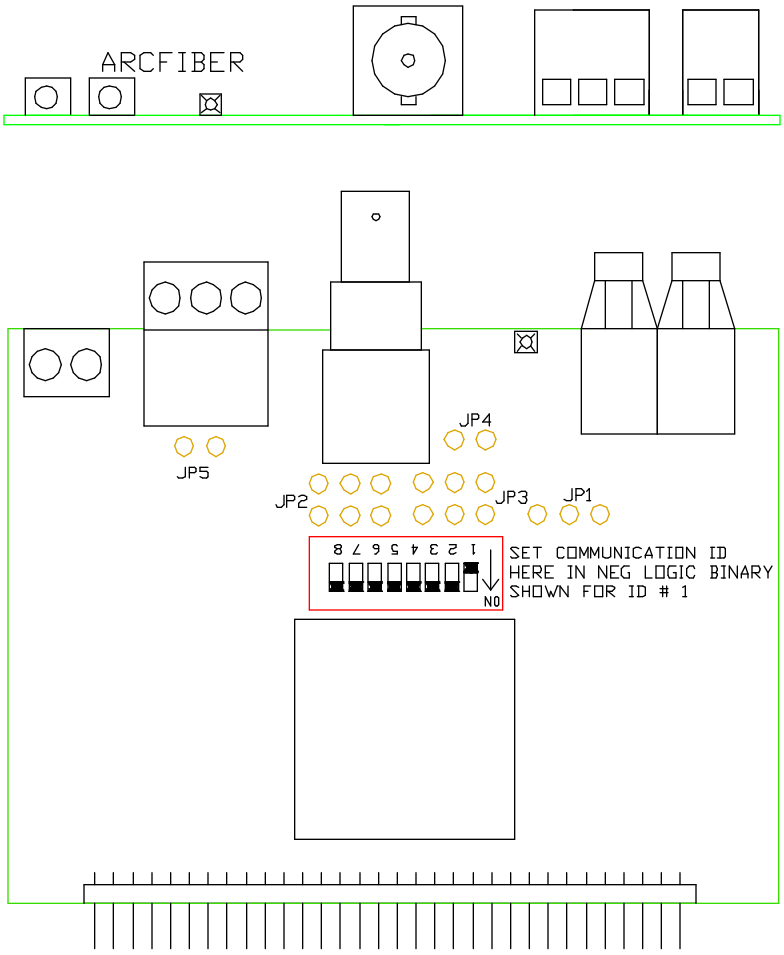


SOFTROL SYSTEMS K4 SINGLE SHUTTLE	S2K4_SINGLE_SHUT	05-24-02	KDL	PAGE 13

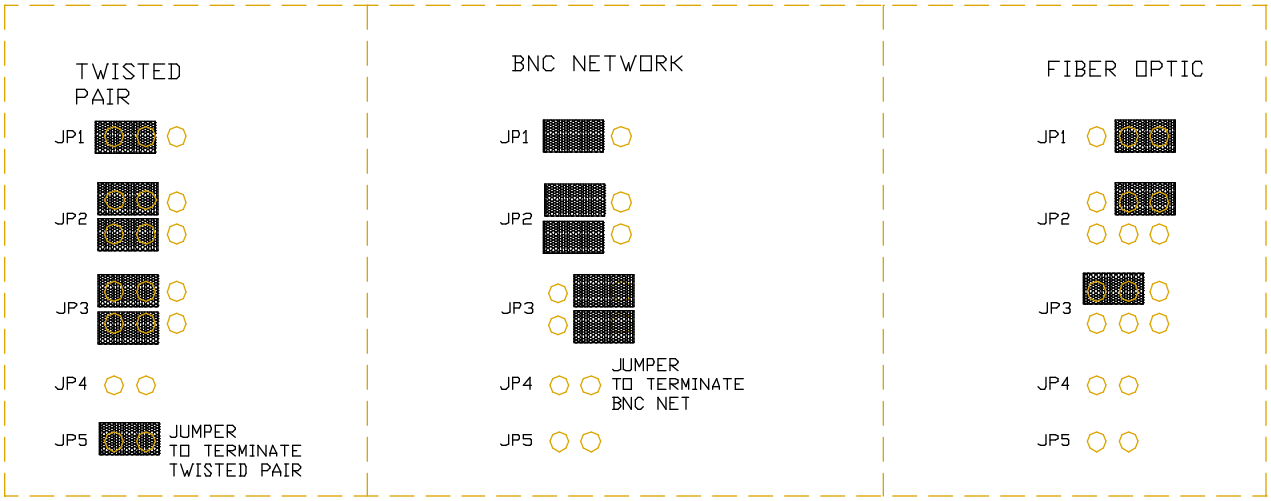

IDR-8G4 MADE IN USA
SOFTROL
OUTPUT 201 RED
SELECT BELT A
OUTPUT 202 RED
SELECT BELT B
OUTPUT 203 RED
SPARE
OUTPUT 204 RED
RAISE BED A
OUTPUT 205 RED
LOWER BED A
OUTPUT 206 RED
RAISE BED B
OUTPUT 207 RED
LOWER BED B
OUTPUT 208 RED
HYDRAULIC PUMP
RACK 2
ADDRESS
4 2 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
RED 18 G
9
IDR-8G4 MADE IN USA
SOFTROL
OUTPUT 101 RED
ENABLE OUTPUTS
OUTPUT 102 RED
SPARE
OUTPUT 103 RED
TRAVEL BRAKE
OUTPUT 104 RED
BED A EXT BRAKE
OUTPUT 105 RED
BED A EXT BRAKE
OUTPUT 106 RED
SELECT BED A EXT
OUTPUT 107
OUTPUT 108 RED
SELECT B BED EXT
RACK 1
ADDRESS
4 2 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
RED 18 G
9


CLAMP
NO
NC
CRES
E-STOP
READY
24VDC
+
24
S1
08
0V
COIL COM
CRPR
PODIUM
READY
24VDC
+
24
4
R1
02
CREO
ENABLE
OUTPUTS
24VDC
9
S1
16
+
24
R1
01
+24
0V
CRMA
MOVE
ALARM
24VDC
MA1
MA2
S7
16
0V
CLAMP
FIELD WIRE
CORRECT
VOLTAGE FOR
OUTPUT DEVICES

E3-ARCFIBER-A CARD



END OF LINE ONLY MUST BWE TERMINATED. USE JUMPER ON CARD OR BNC T AND TERMINATOR



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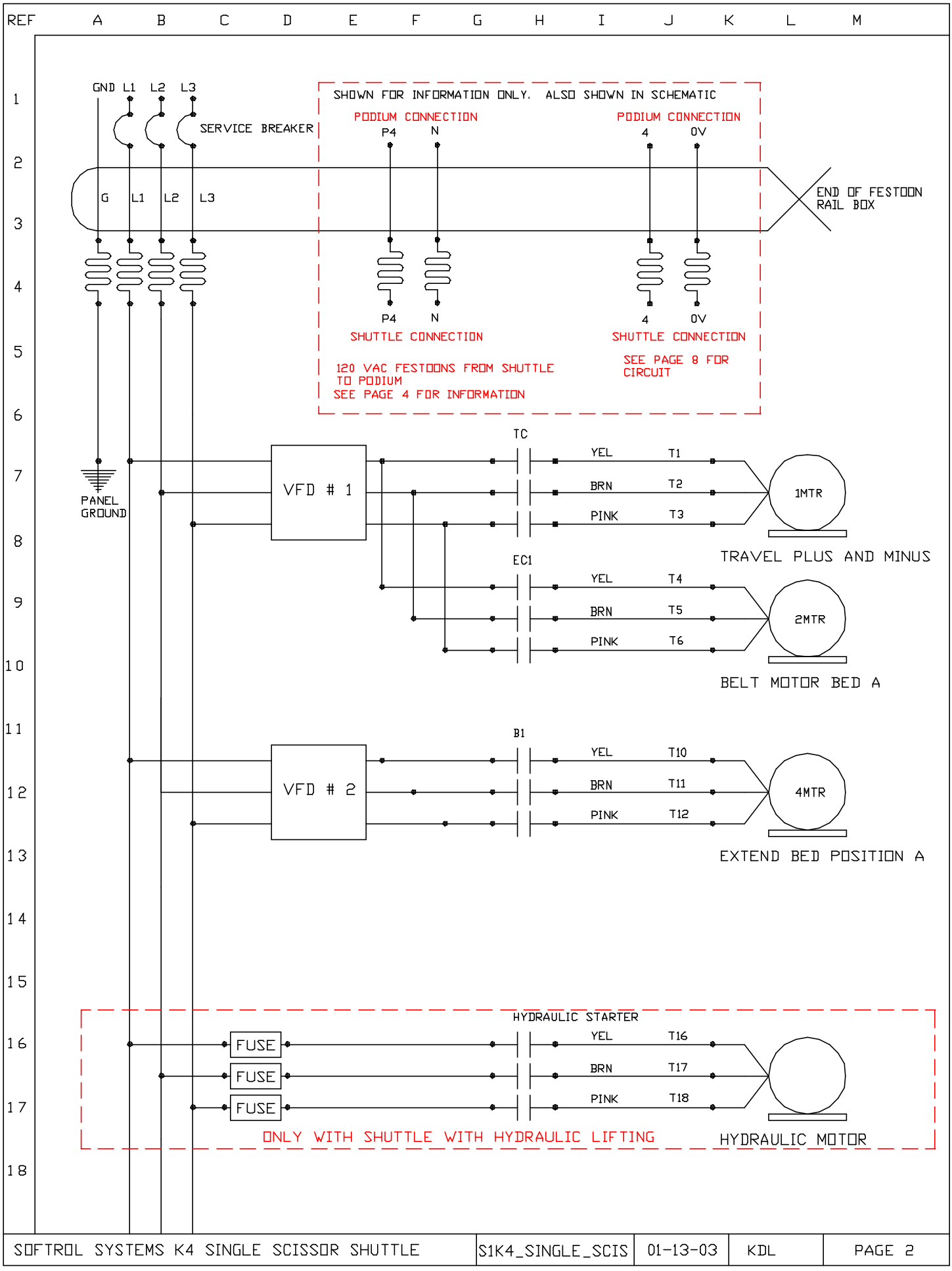
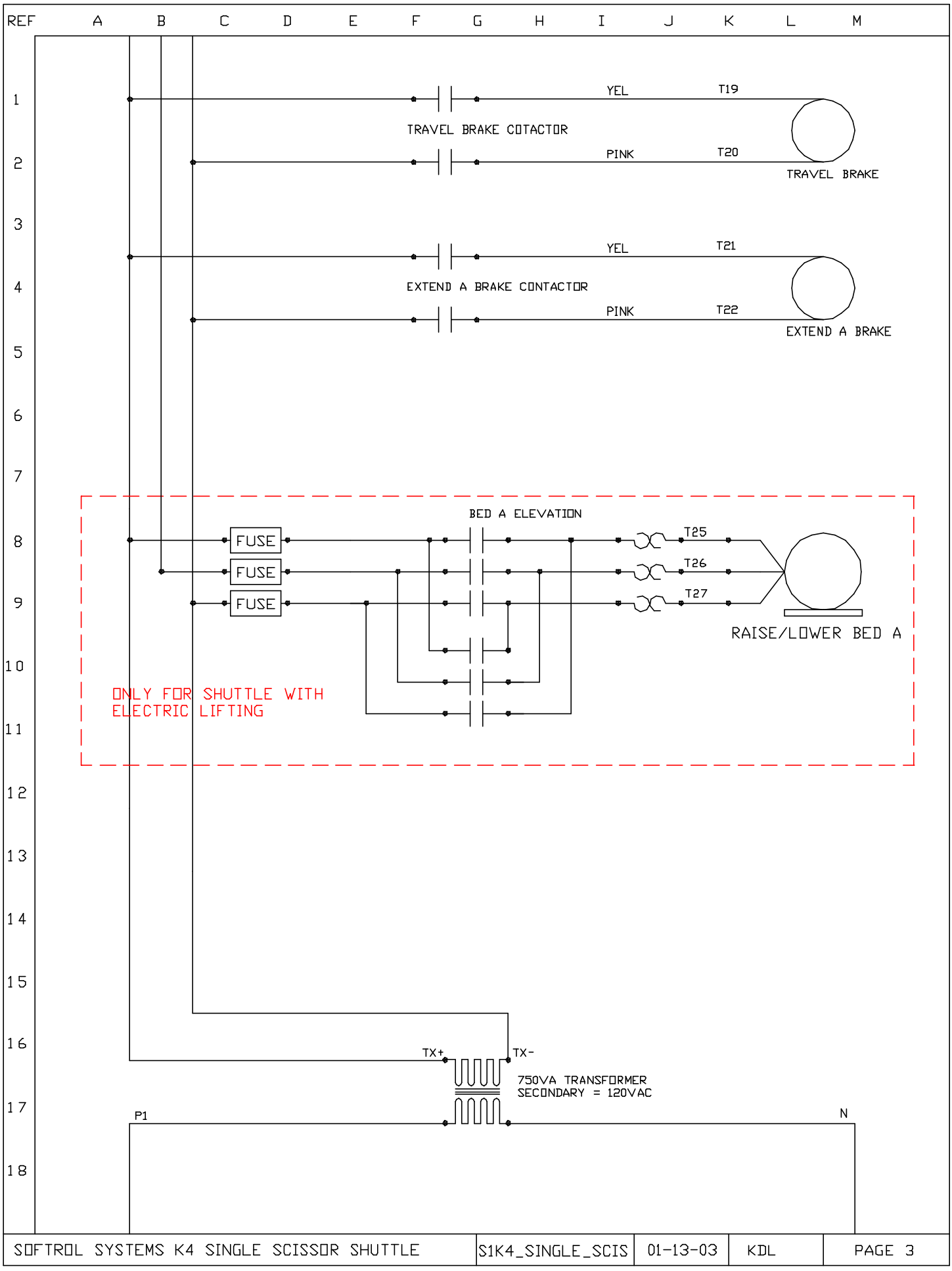
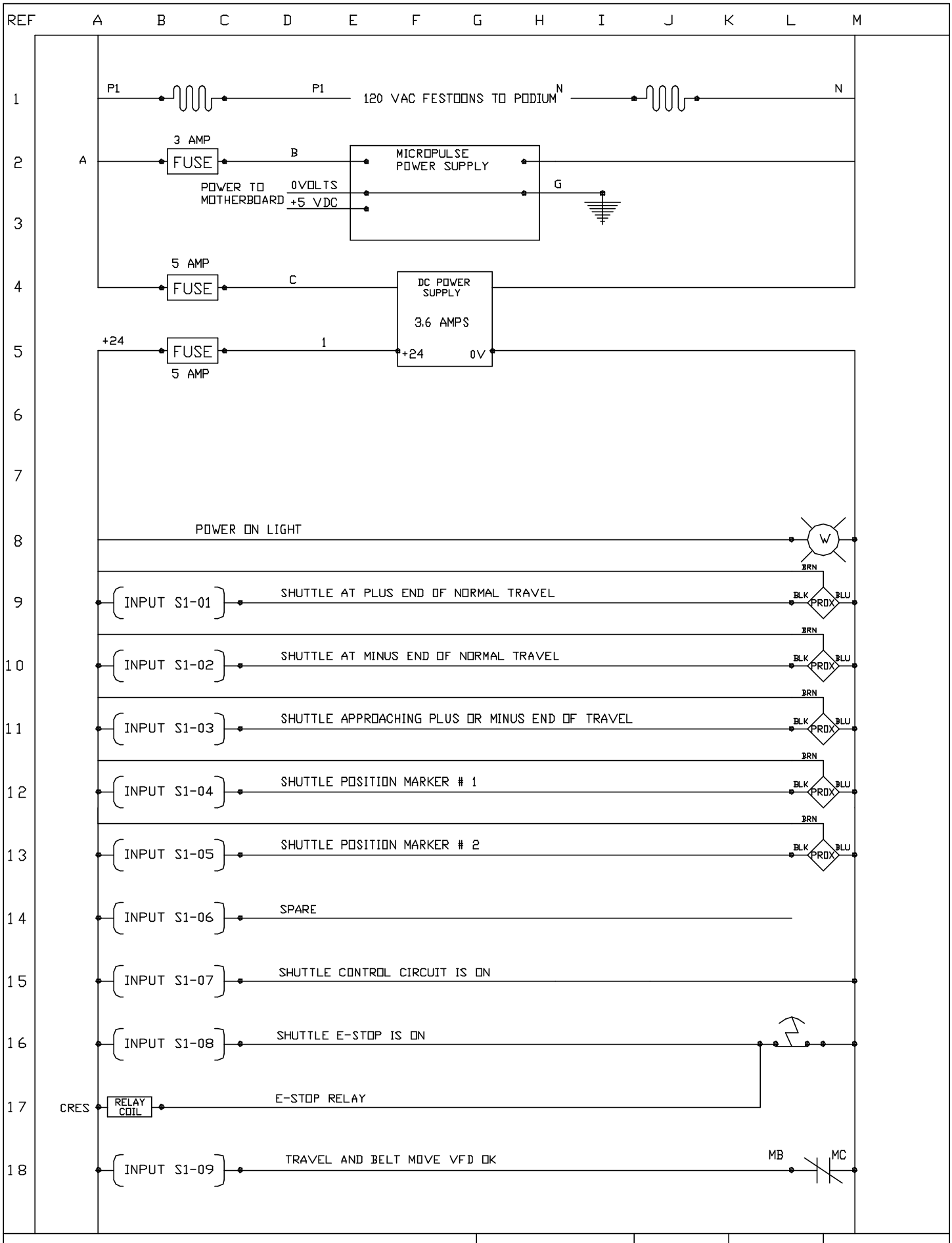
K4 SINGLE SCISSOR SHUTTLE



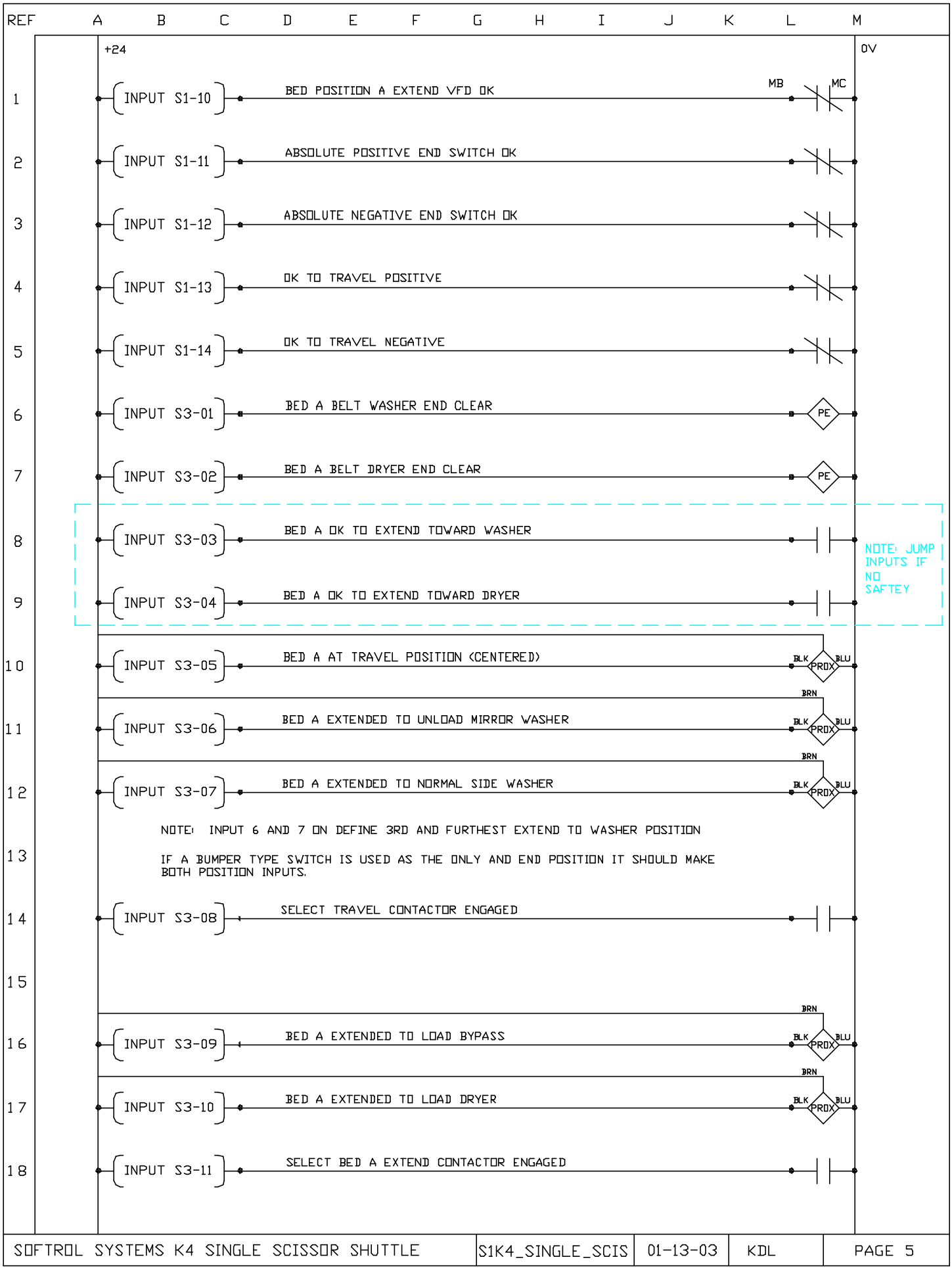
SOFTROL SYSTEMS K4 SINGLE SCISSOR SHUTTLE	S1K4_SINGLE_SCIS	01-13-03	KDL	PAGE 2

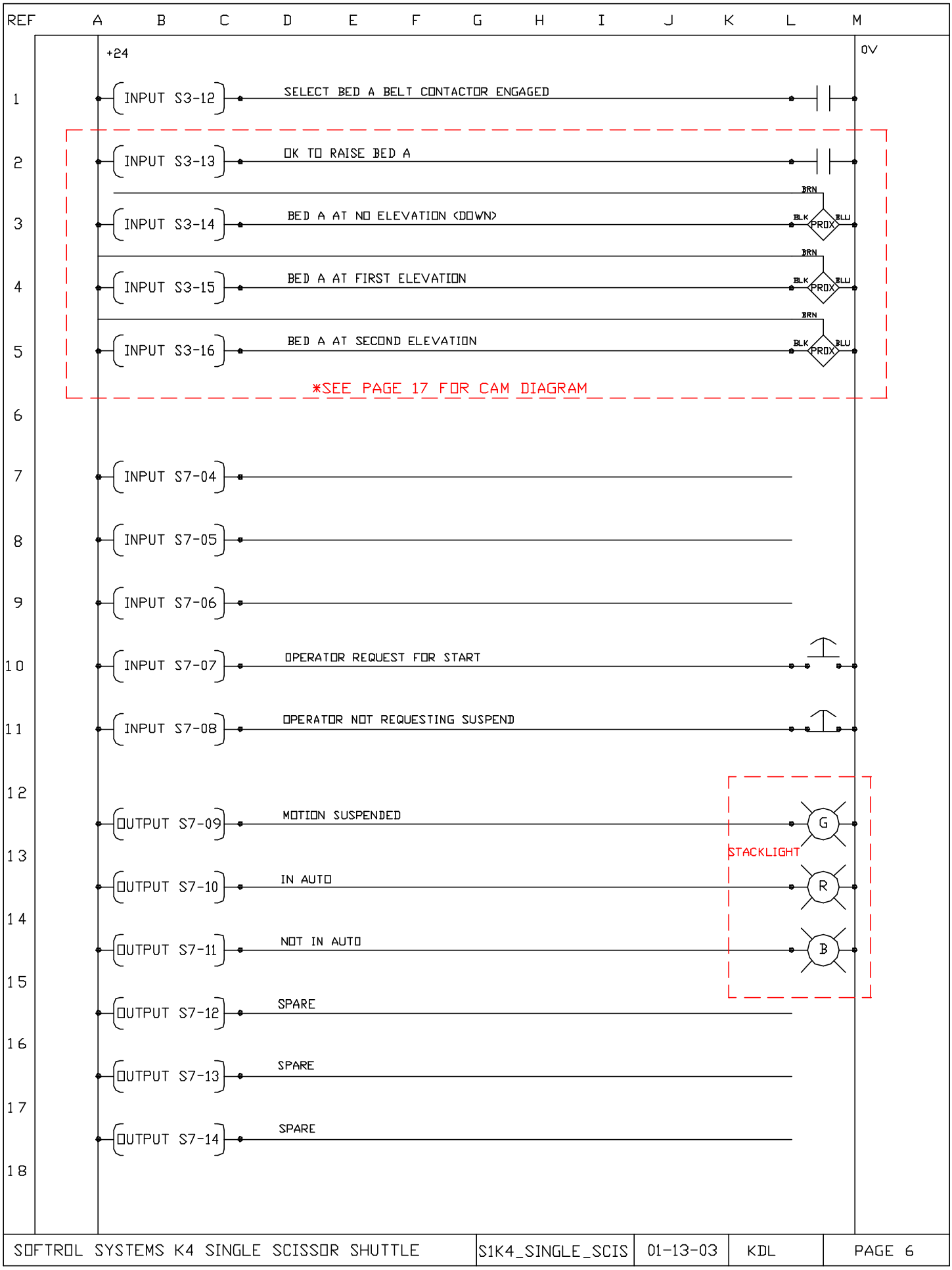


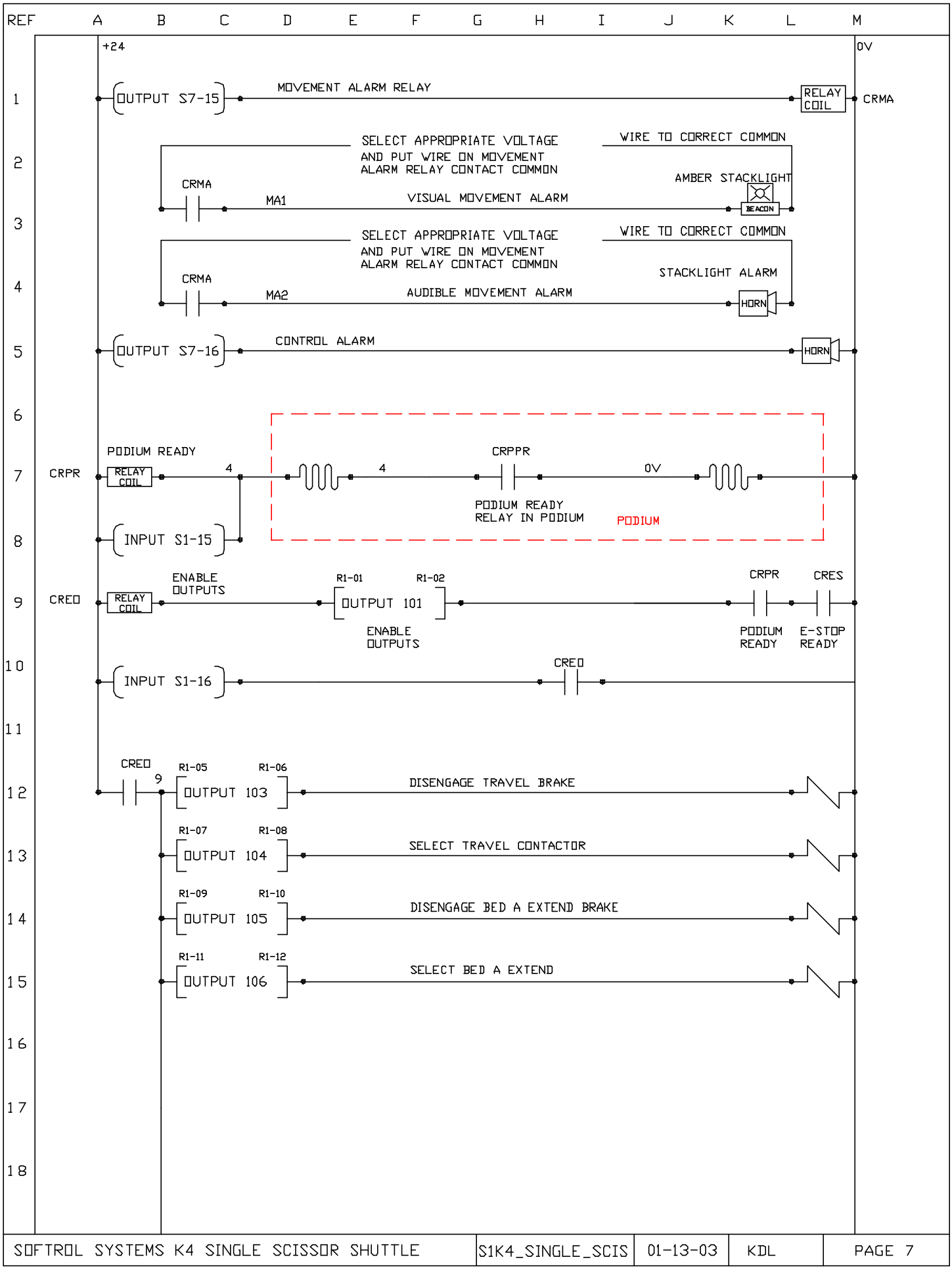
SOFTROL SYSTEMS K4 SINGLE SCISSOR SHUTTLE	S1K4_SINGLE_SCIS	01-13-03	KDL	PAGE 3



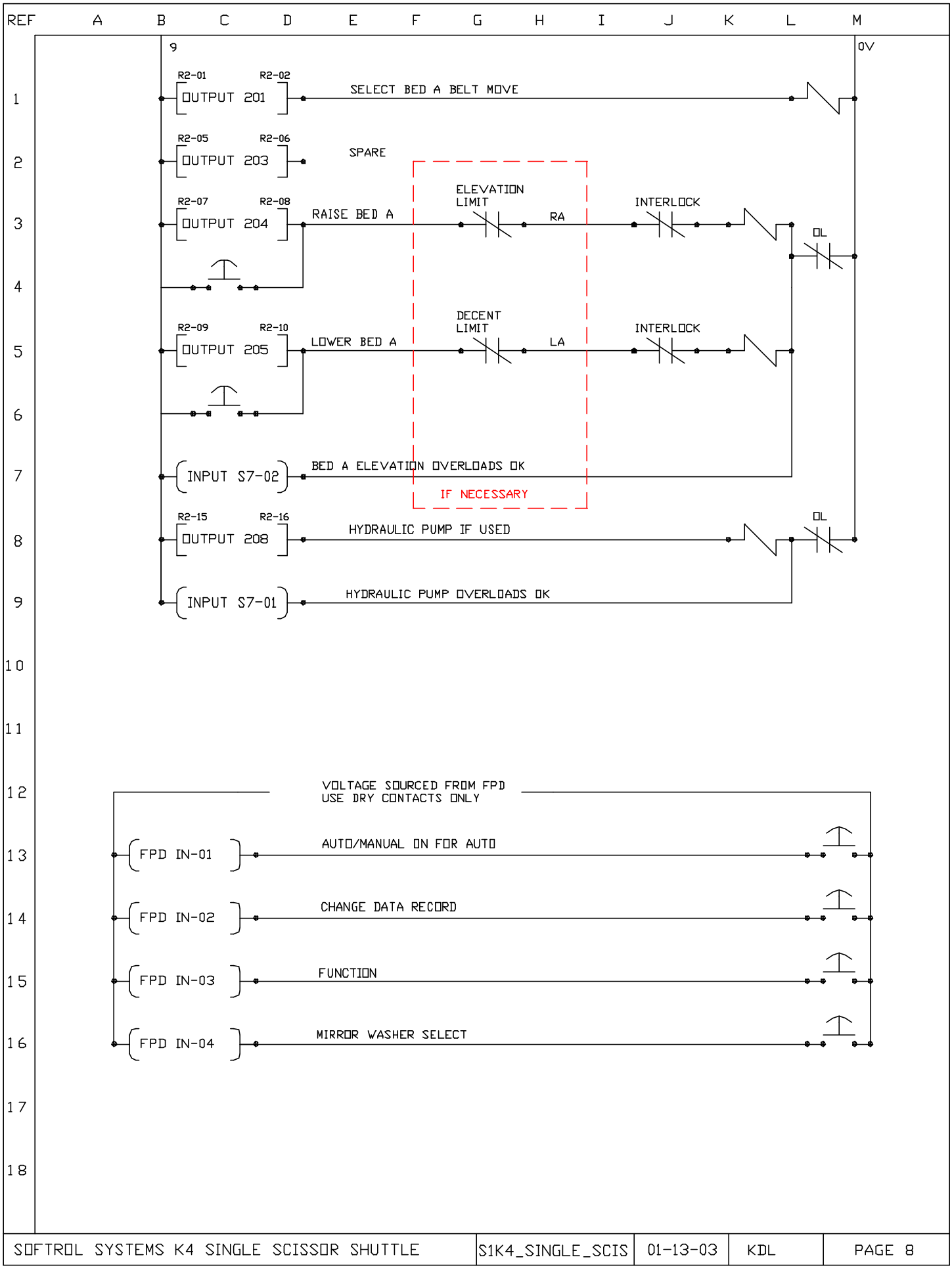
SOFTROL SYSTEMS K4 SINGLE SCISSOR SHUTTLE	S1K4_SINGLE_SCIS	01-13-03	KDL	PAGE 4

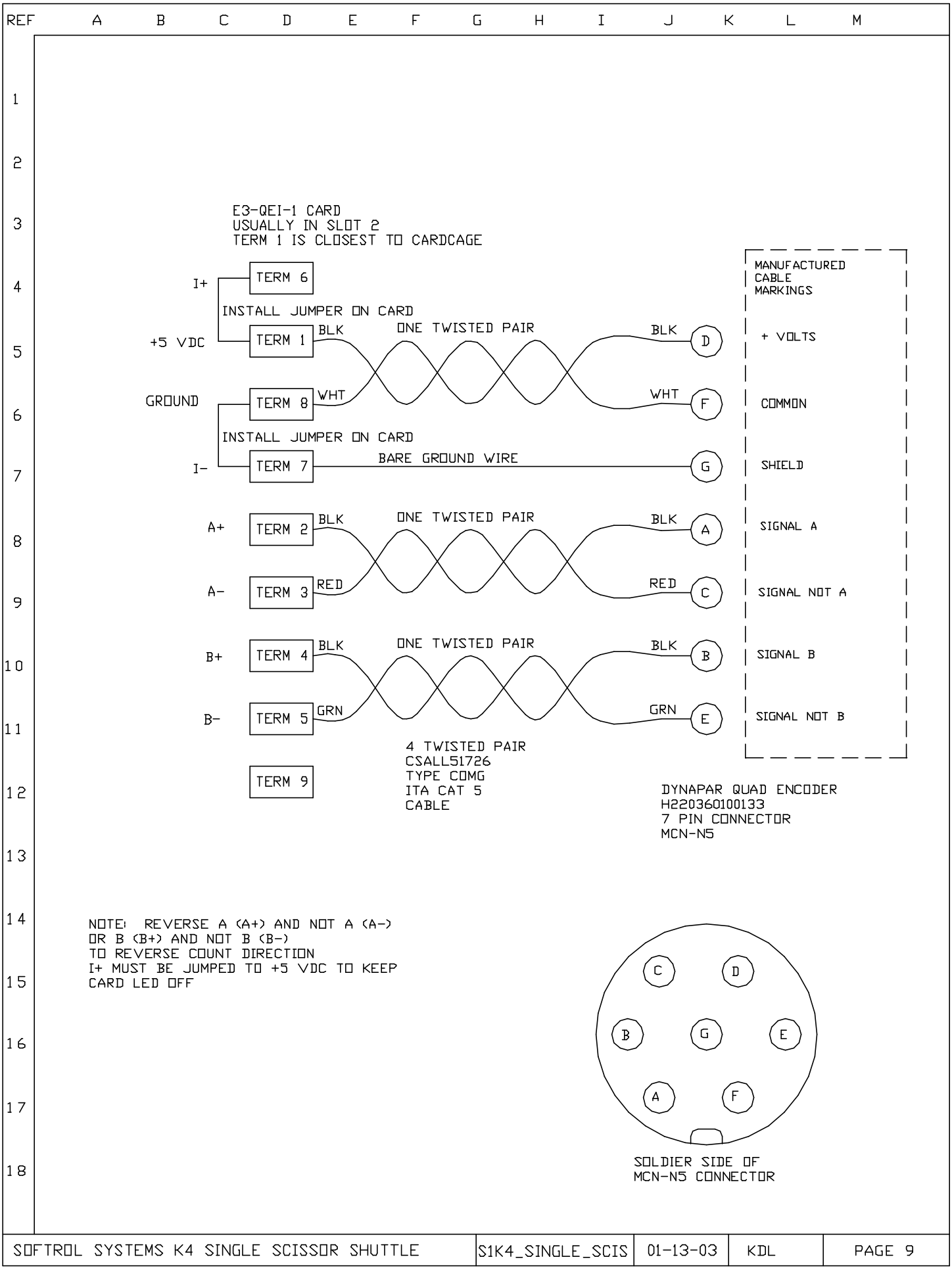

REF
A
B
C
D
E
F
G
H
I
J
K
L
M
+24
0V
1
INPUT S1-10
BED POSITION A EXTEND VFD OK
MB
MC
2
INPUT S1-11
ABSOLUTE POSITIVE END SWITCH OK
3
INPUT S1-12
ABSOLUTE NEGATIVE END SWITCH OK
4
INPUT S1-13
OK TO TRAVEL POSITIVE
5
INPUT S1-14
OK TO TRAVEL NEGATIVE
6
INPUT S3-01
BED A BELT WASHER END CLEAR
PE
7
INPUT S3-02
BED A BELT DRYER END CLEAR
PE
8
INPUT S3-03
BED A OK TO EXTEND TOWARD WASHER
NOTE: JUMP INPUTS IF NO SAFTEY
9
INPUT S3-04
BED A OK TO EXTEND TOWARD DRYER
10
INPUT S3-05
BED A AT TRAVEL POSITION (CENTERED)
BLK
PROX
BLU
11
INPUT S3-06
BED A EXTENDED TO UNLOAD MIRROR WASHER
BRN
BLK
PROX
BLU
12
INPUT S3-07
BED A EXTENDED TO NORMAL SIDE WASHER
BRN
BLK
PROX
BLU
NOTE: INPUT 6 AND 7 ON DEFINE 3RD AND FURTHEST EXTEND TO WASHER POSITION
13
IF A BUMPER TYPE SWITCH IS USED AS THE ONLY AND END POSITION IT SHOULD MAKE BOTH POSITION INPUTS.
14
INPUT S3-08
SELECT TRAVEL CONTACTOR ENGAGED
15
16
INPUT S3-09
BED A EXTENDED TO LOAD BYPASS
BRN
BLK
PROX
BLU
17
INPUT S3-10
BED A EXTENDED TO LOAD DRYER
BRN
BLK
PROX
BLU
18
INPUT S3-11
SELECT BED A EXTEND CONTACTOR ENGAGED

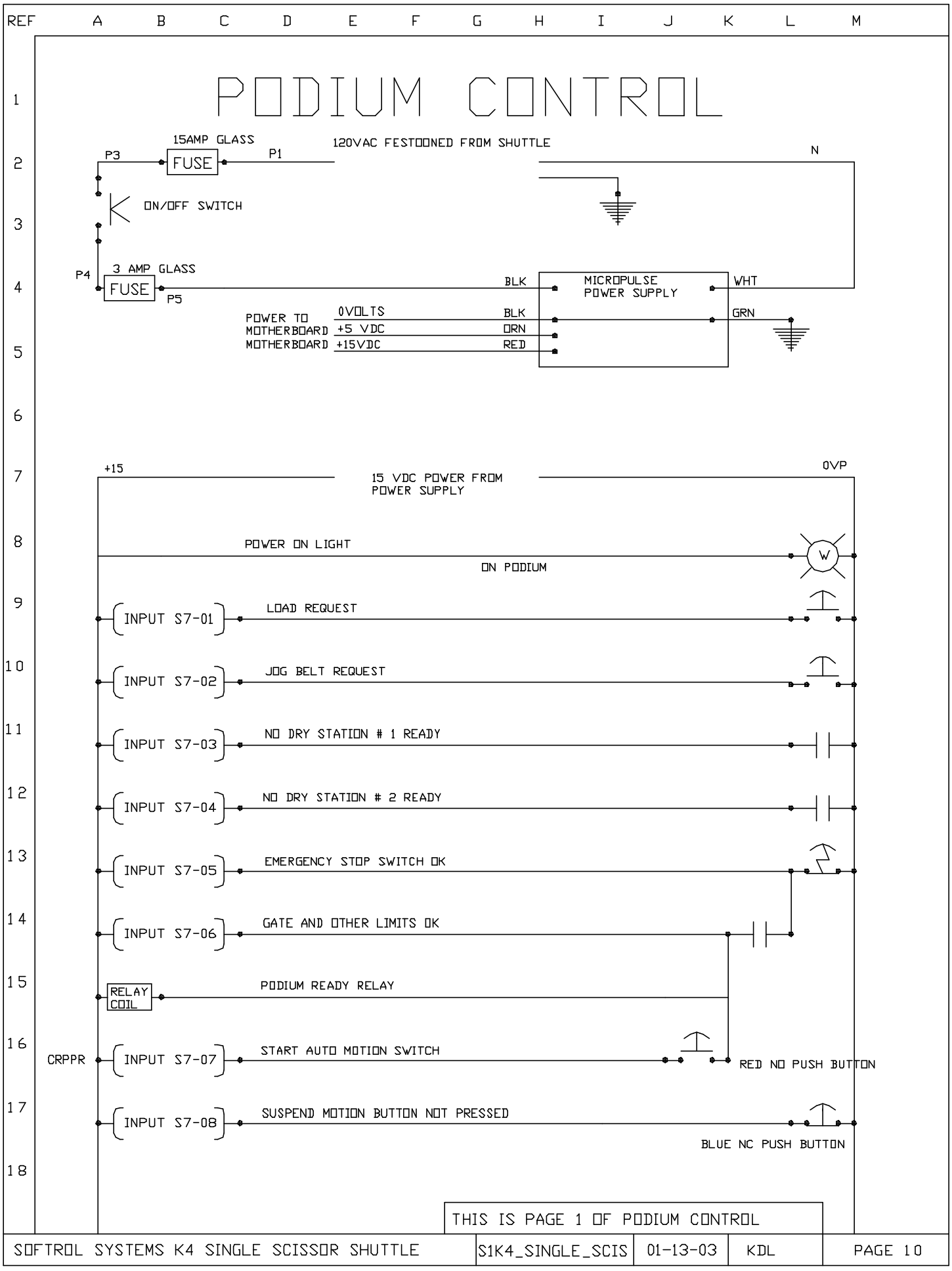

REF
A
B
C
D
E
F
G
H
I
J
K
L
M
+24
0V
1
INPUT S3-12
SELECT BED A BELT CONTACTOR ENGAGED
2
INPUT S3-13
OK TO RAISE BED A
3
INPUT S3-14
BED A AT NO ELEVATION <DOWN>
BRN
BLK
PROX
BLU
4
INPUT S3-15
BED A AT FIRST ELEVATION
5
INPUT S3-16
BED A AT SECOND ELEVATION
*SEE PAGE 17 FOR CAM DIAGRAM
6
7
INPUT S7-04
8
INPUT S7-05
9
INPUT S7-06
10
INPUT S7-07
OPERATOR REQUEST FOR START
11
INPUT S7-08
OPERATOR NOT REQUESTING SUSPEND
12
OUTPUT S7-09
MOTION SUSPENDED
G
STACKLIGHT
13
OUTPUT S7-10
IN AUTO
R
14
OUTPUT S7-11
NOT IN AUTO
B
15
OUTPUT S7-12
SPARE
16
OUTPUT S7-13
SPARE
17
OUTPUT S7-14
SPARE
18



SOFTROL SYSTEMS K4 SINGLE SCISSOR SHUTTLE	S1K4_SINGLE_SCIS	01-13-03	KDL	PAGE 7

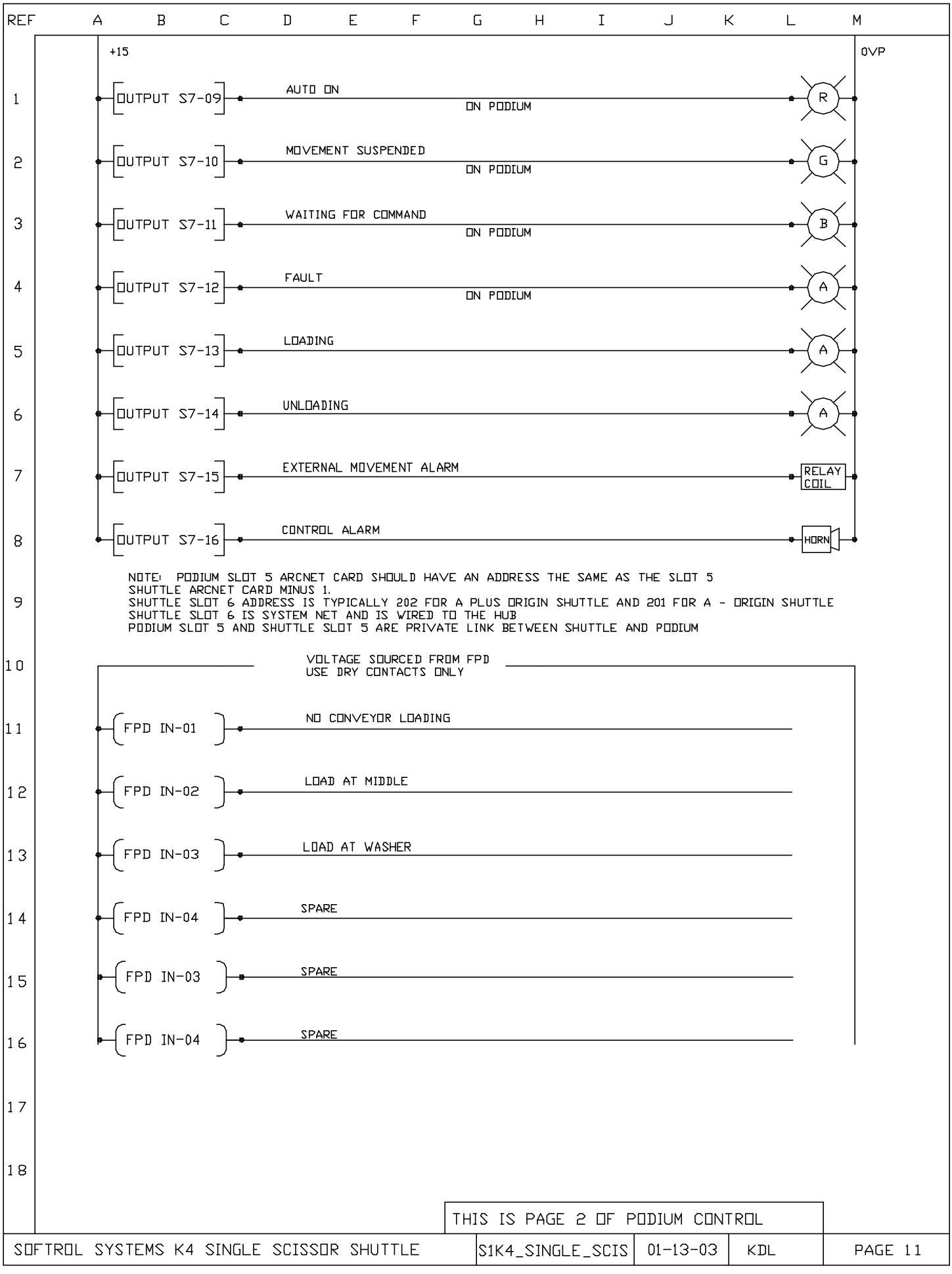

REF
A
B
C
D
E
F
G
H
I
J
K
L
M
9
0V
R2-01
R2-02
OUTPUT 201
SELECT BED A BELT MOVE
R2-05
R2-06
OUTPUT 203
SPARE
R2-07
R2-08
OUTPUT 204
RAISE BED A
ELEVATION LIMIT
RA
INTERLOCK
OL
R2-09
R2-10
OUTPUT 205
LOWER BED A
DECENT LIMIT
LA
INTERLOCK
INPUT S7-02
BED A ELEVATION OVERLOADS OK
IF NECESSARY
R2-15
R2-16
OUTPUT 208
HYDRAULIC PUMP IF USED
OL
INPUT S7-01
HYDRAULIC PUMP OVERLOADS OK
VOLTAGE SOURCED FROM FPD
USE DRY CONTACTS ONLY
FPD IN-01
AUTO/MANUAL ON FOR AUTO
FPD IN-02
CHANGE DATA RECORD
FPD IN-03
FUNCTION
FPD IN-04
MIRROR WASHER SELECT


REF A B C D E F G H I J K L M
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E3-QEI-1 CARD
USUALLY IN SLOT 2
TERM 1 IS CLOSEST TO CARDCAGE
I+
TERM 6
INSTALL JUMPER ON CARD
+5 VDC
TERM 1
BLK
ONE TWISTED PAIR
BLK
D
GROUND
TERM 8
WHT
WHT
F
INSTALL JUMPER ON CARD
I-
TERM 7
BARE GROUND WIRE
G
A+
TERM 2
BLK
ONE TWISTED PAIR
BLK
A
A-
TERM 3
RED
RED
C
B+
TERM 4
BLK
ONE TWISTED PAIR
BLK
B
B-
TERM 5
GRN
GRN
E
TERM 9
4 TWISTED PAIR
CSALL51726
TYPE COMG
ITA CAT 5
CABLE
MANUFACTURED
CABLE
MARKINGS
+ VOLTS
COMMON
SHIELD
SIGNAL A
SIGNAL NOT A
SIGNAL B
SIGNAL NOT B
DYNAPAR QUAD ENCODER
H220360100133
7 PIN CONNECTOR
MCN-N5
NOTE: REVERSE A (A+) AND NOT A (A-)
OR B (B+) AND NOT B (B-)
TO REVERSE COUNT DIRECTION
I+ MUST BE JUMPED TO +5 VDC TO KEEP
CARD LED OFF
C
D
B
G
E
A
F
SOLDIER SIDE OF
MCN-N5 CONNECTOR

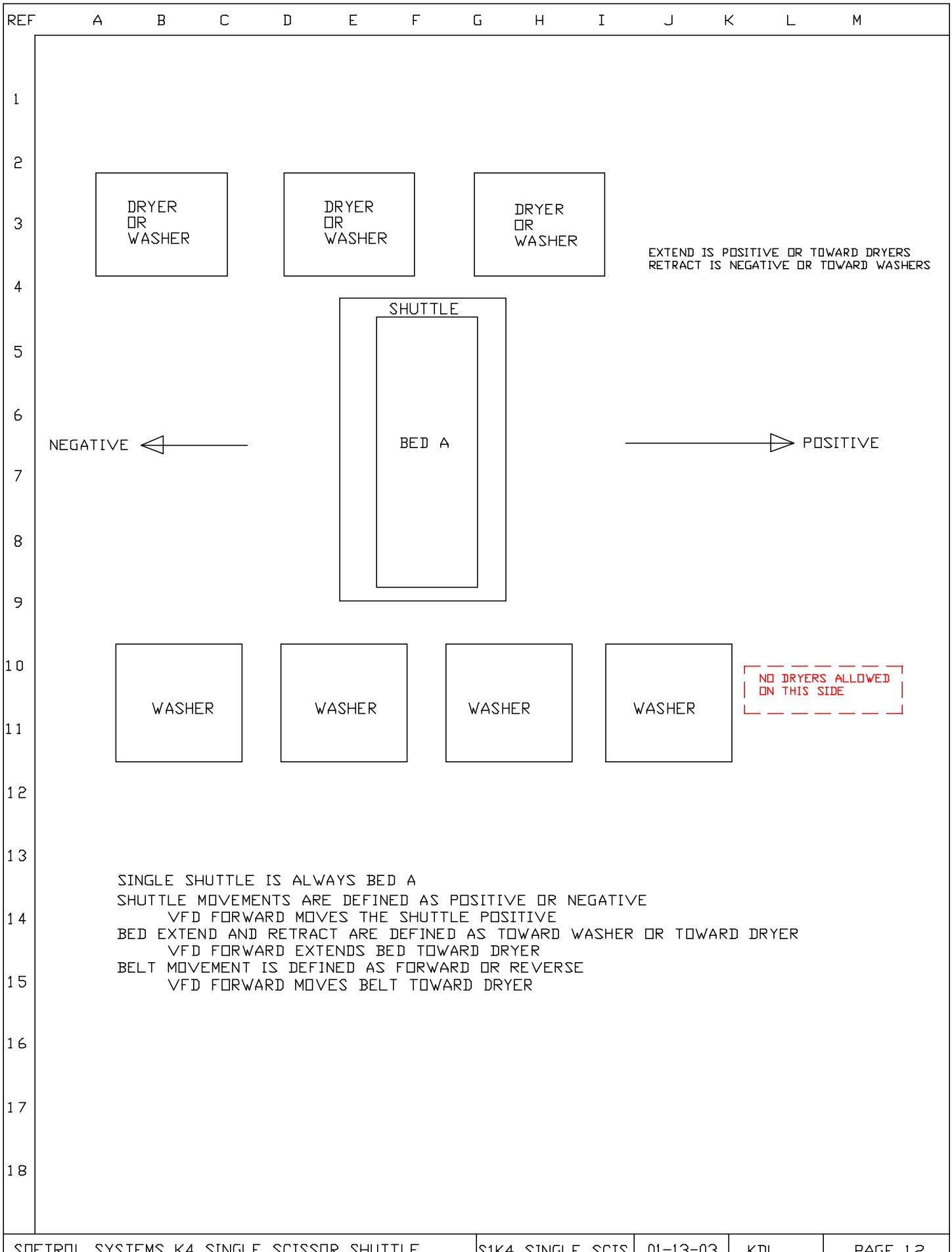


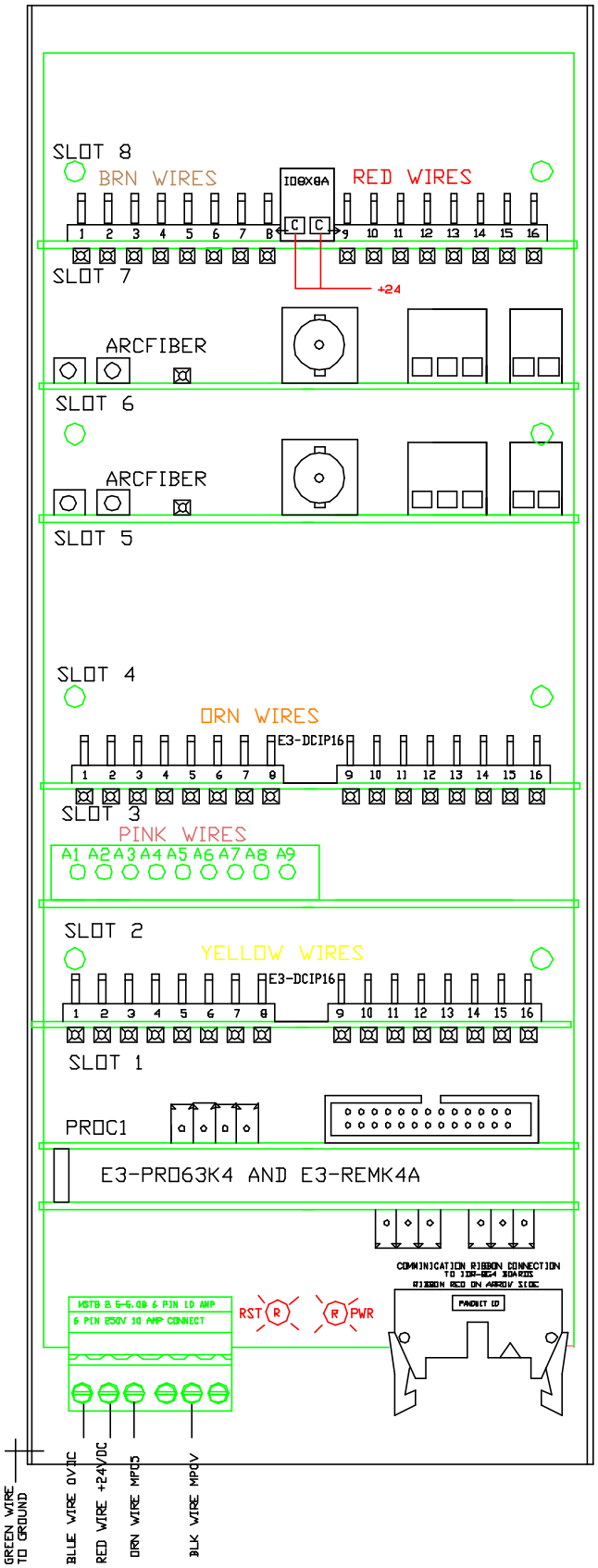
THIS IS PAGE 1 OF PODIUM CONTROL

SOFTROL SYSTEMS K4 SINGLE SCISSOR SHUTTLE	S1K4_SINGLE_SCIS	01-13-03	KDL	PAGE 10

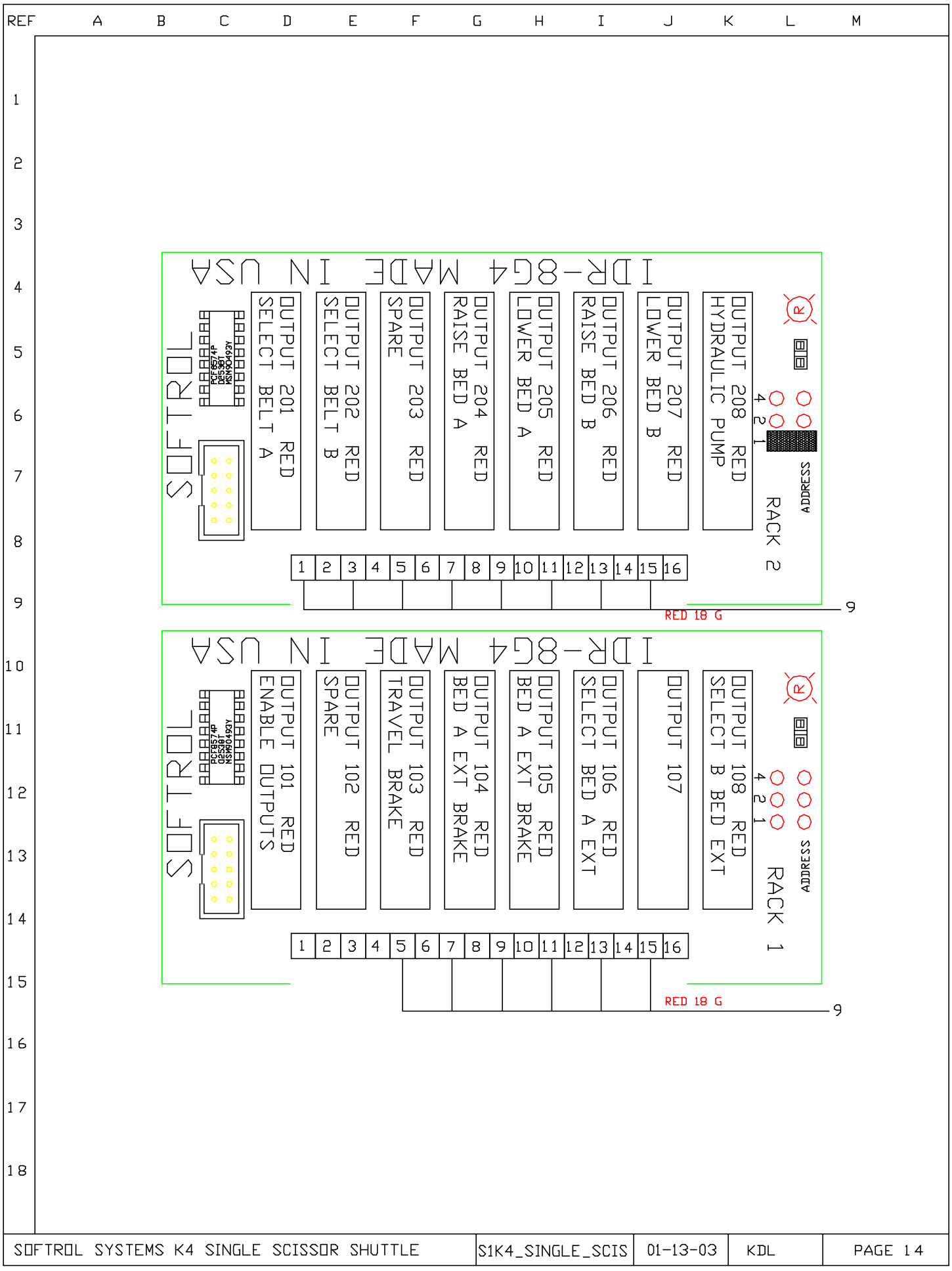


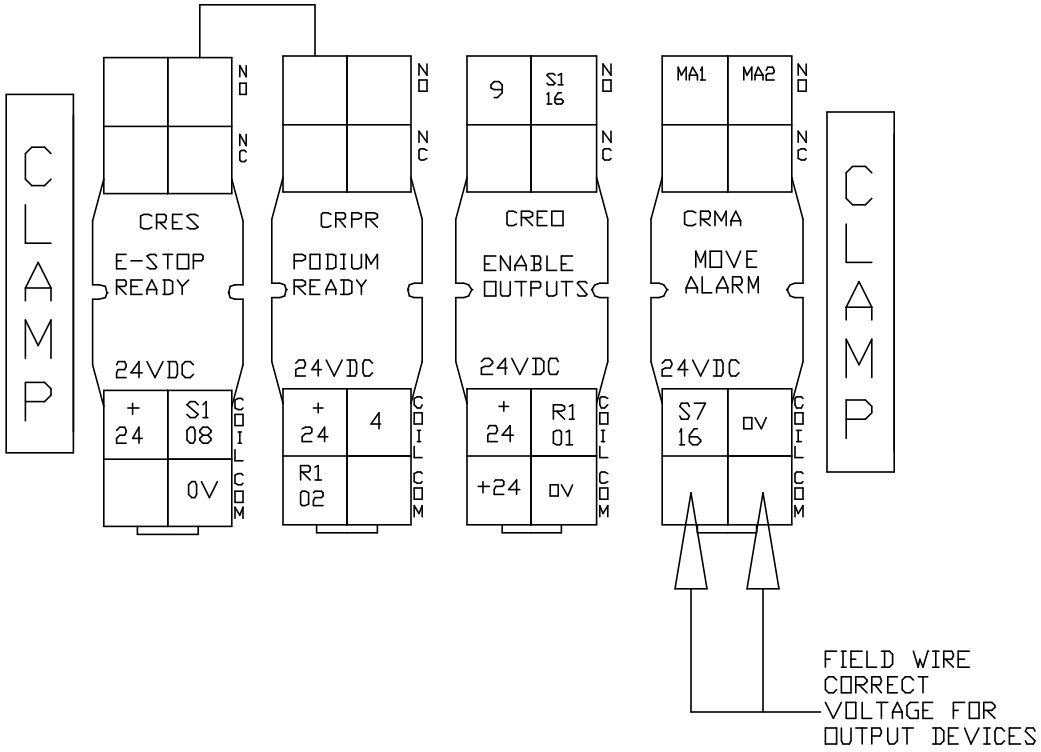
THIS IS PAGE 2 OF PODIUM CONTROL


REF A B C D E F G H I J K L M
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
DRYER OR WASHER
DRYER OR WASHER
DRYER OR WASHER
EXTEND IS POSITIVE OR TOWARD DRYERS
RETRACT IS NEGATIVE OR TOWARD WASHERS
SHUTTLE
BED A
NEGATIVE
POSITIVE
WASHER
WASHER
WASHER
WASHER
NO DRYERS ALLOWED ON THIS SIDE
SINGLE SHUTTLE IS ALWAYS BED A
SHUTTLE MOVEMENTS ARE DEFINED AS POSITIVE OR NEGATIVE
VFD FORWARD MOVES THE SHUTTLE POSITIVE
BED EXTEND AND RETRACT ARE DEFINED AS TOWARD WASHER OR TOWARD DRYER
VFD FORWARD EXTENDS BED TOWARD DRYER
BELT MOVEMENT IS DEFINED AS FORWARD OR REVERSE
VFD FORWARD MOVES BELT TOWARD DRYER
SOFTROL SYSTEMS K4 SINGLE SCISSOR SHUTTLE
S1K4_SINGLE_SCIS
01-13-03
KDL
PAGE 12

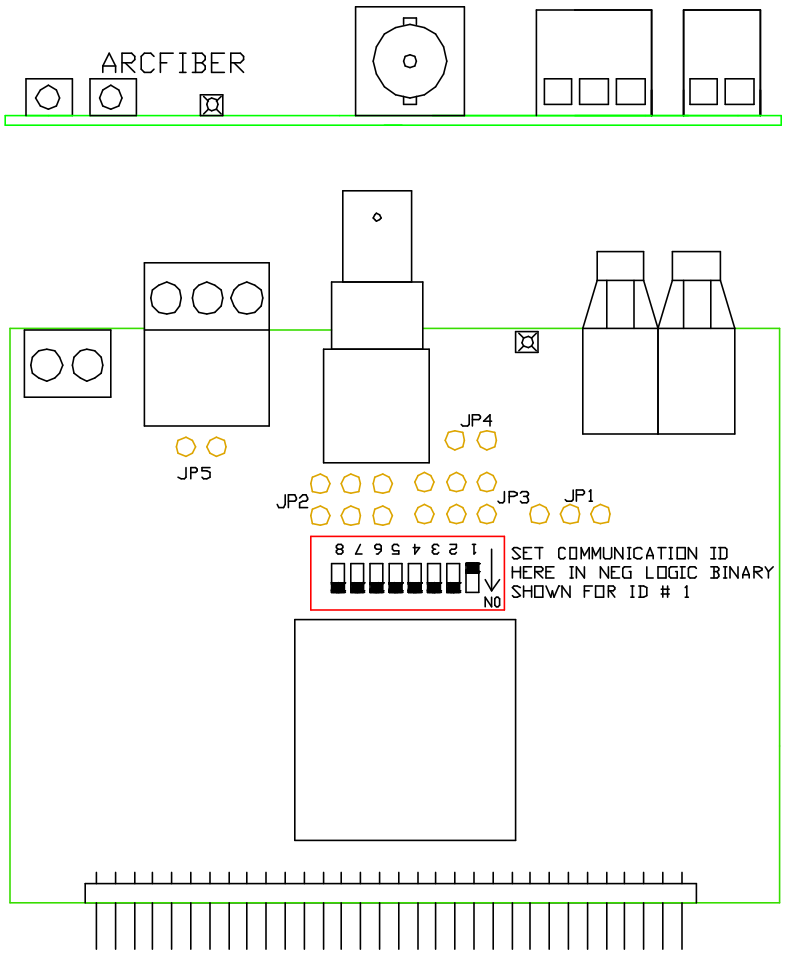


SOFTROL SYSTEMS K4 SINGLE SCISSOR SHUTTLE	S1K4_SINGLE_SCIS	01-13-03	KDL	PAGE 13

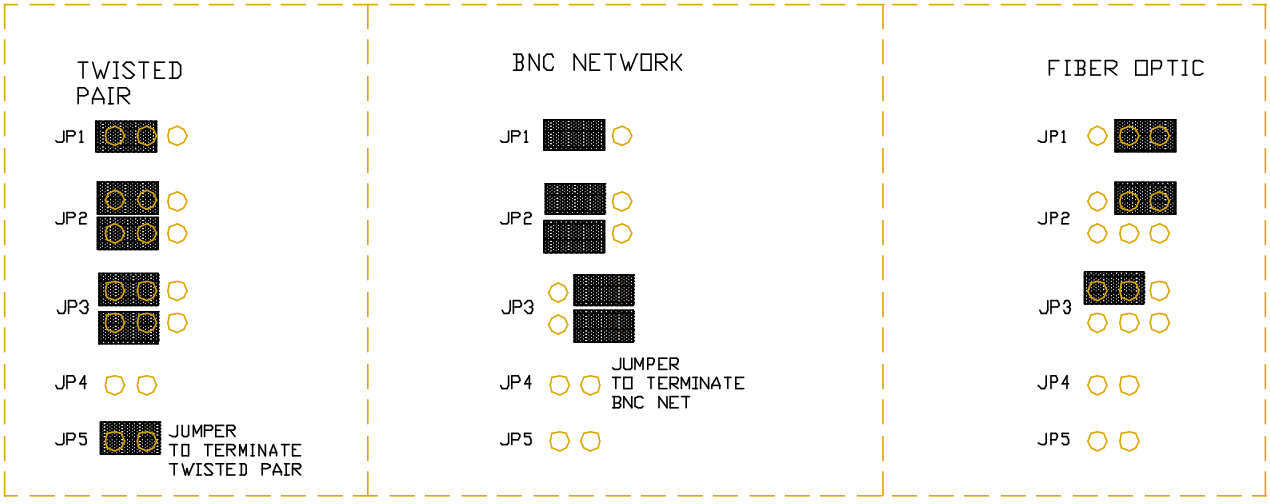

REF
A B C D E F G H I J K L M
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
IDR-8G4 MADE IN USA
SOFTROL
OUTPUT 201 RED SELECT BELT A
OUTPUT 202 RED SELECT BELT B
OUTPUT 203 RED SPARE
OUTPUT 204 RED RAISE BED A
OUTPUT 205 RED LOWER BED A
OUTPUT 206 RED RAISE BED B
OUTPUT 207 RED LOWER BED B
OUTPUT 208 RED HYDRAULIC PUMP
RACK 2
ADDRESS
4 2 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
RED 18 G
9
IDR-8G4 MADE IN USA
SOFTROL
OUTPUT 101 RED ENABLE OUTPUTS
OUTPUT 102 RED SPARE
OUTPUT 103 RED TRAVEL BRAKE
OUTPUT 104 RED BED A EXT BRAKE
OUTPUT 105 RED BED A EXT BRAKE
OUTPUT 106 RED SELECT BED A EXT
OUTPUT 107
OUTPUT 108 RED SELECT B BED EXT
RACK 1
ADDRESS
4 2 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
RED 18 G
9

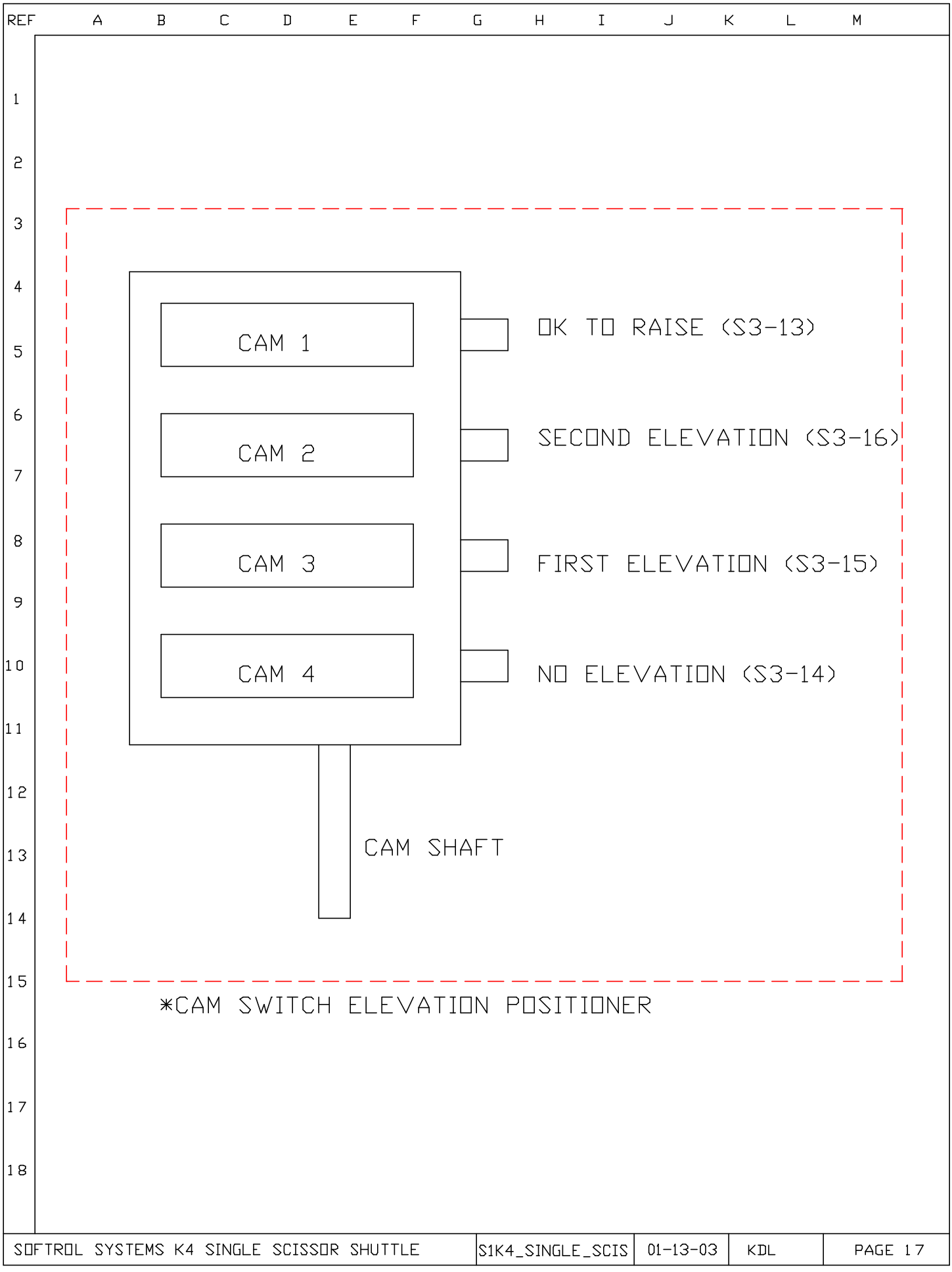

CLAMP
NO
NC
CRES
E-STOP
READY
24VDC
+
24
S1
08
0V
COIL COM
CRPR
PODIUM
READY
24VDC
+
24
4
R1
02
COIL COM
9
S1
16
CREO
ENABLE
OUTPUTS
24VDC
+
24
R1
01
+24
0V
COIL COM
MA1
MA2
CRMA
MOVE
ALARM
24VDC
S7
16
0V
COIL COM
CLAMP
FIELD WIRE
CORRECT
VOLTAGE FOR
OUTPUT DEVICES

E3-ARCFIBER-A CARD



END OF LINE ONLY MUST BWE TERMINATED. USE JUMPER ON CARD OR BNC T AND TERMINATOR




REF A B C D E F G H I J K L M
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
CAM 1
CAM 2
CAM 3
CAM 4
OK TO RAISE (S3-13)
SECOND ELEVATION (S3-16)
FIRST ELEVATION (S3-15)
NO ELEVATION (S3-14)
CAM SHAFT
*CAM SWITCH ELEVATION POSITIONER

SOFTROL AUTOPULSE

Notes:

SOFTROL

Software & Control for Automation

This has been an overview of the Softrol AutoPulse Automation System. If you have any questions or suggestions, please contact Softrol Systems, Inc.

Softrol AutoPulse Automation System 1st addition 05/26/99
Revised 11-10-03 making shuttle manual.
Revised 07/26/05 section on Reset Auto to Class instead of Group

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4867 North Main Street

Acworth, GA 30101

770.974.2700

www.softrol.com