



STRONG. SMART. BEAUTIFUL.

T5 / T4 Error Codes

DGC5X Console Board W/ IBC7X (110V) or IBC8X LCB (220V)

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Notes:

If there are any safety concerns please call the Matrix Fitness Systems Service Department at 866-693-4863 before performing any service.

Please make sure to take any safety precautions before performing any service.

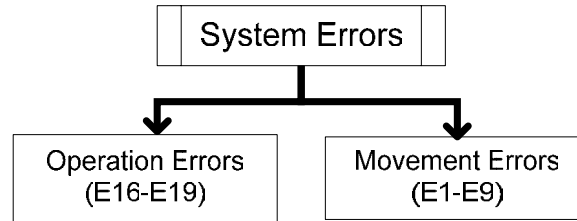
Unplug any electrical power cords before touching any electrical components.

Use common sense before performing any electrical service.

Do not touch any component that is "hot" or looks to be "hot".

ERROR CODES

Errors are divided in elevation related errors (E1 – E3) ,speed related errors (E5 – E9) or Operation Errors (E16-E19). System should be properly calibrated (if possible) before attempting to troubleshoot error codes.



The following table contains standard error codes. Other error codes are enabled for development purposes but cannot be remedied via engineering variables. Error codes above 9 require toggle of system power to reset. Error codes 9 and below can be remedied in some conditions by system calibration.

CODE	DESCRIPTION
1	Reverse elevation pot
2	Elevation out of range
3	Elevation movement stall
5	Over-speed
6	Runaway belt
7	Speed stall (could be missing speed sensor)
9	Speed Range (usually caused by calibration)
16	Stuck key error
18	Safety Switch Test Failure
19	NOVRAM failure

Service Information

For faster service please have the following information ready.

Serial Number

Production Date:

This information is located on the front of the elevation rack.

Recording Information Needed from Manager Mode, Engineering Mode, & Service Mode

- To enter Manager Mode hold down the Rolling & Manual Keys for 3 seconds.
- To enter ENG Mode hold down the Rolling & Manual Keys for 10 seconds. You will need to press Enter to select the specific function you are looking for.
- Enter the Service 5 Display and Record the Last 5 Error Codes. This is needed for future diagnostic use.
To enter Manager Mode hold down the Rolling & Manual Keys for 3 seconds.
Use the Speed Up Arrow to move to SERVICE. Press Enter. Use the Speed Up Arrows to move to SERVICE 5 and press Enter. Use the Speed Down Arrow Key to cycle through the list of Errors. Please record the last 5 Errors that occurred, you will also need to record the error detail. To do this you need to use the Elevation Up Arrow to cycle through the details of each selected error.
Please record the Errors as they are displayed on the console.

SERVICE 5 – ERROR LOG DETAILS

DOT MATRIX

Blank

ALPHA NUMERIC

Displays text describing the value displayed in the time window. Current displayed values:

1. "ERROR CODE" – flagged error code
2. "TARGET SPD" – target speed at the time of the error (1/10 MPH)
3. "ACTUAL SPD" – actual speed at the time of the error (1/100 MPH)
4. "TARGET PWM" – target belt PWM at the time of the error (ticks)
5. "ACTUAL PWM" – actual belt PWM at the time of the error (ticks)
6. "TARGET ELV" – target elevation at the time of the error (1/10 percent grade)
7. "ACTUAL ELV" – actual elevation at the time of the error (a/d ticks)
8. "TIME TOTAL" – target program run time (in minutes)
9. "TIME EXP" – expired program time (in seconds, only accumulated while belt is running)
10. "SCREEN" – screen program was on when error occurred.

SEVEN SEGMENTS

- Elevation – Displays current number of errors
- Speed – Displays current error index (higher number more recent, flashes on and off)
- Distance – Displays the logged error code
- Time – Displays the value of the logged error parameter (see ALPHANUMERIC description above for details on the unit value).

DISCRETE

Start, elevation and speed LED's flash on and off

KEYS

- Elevation Up/Down - Scrolls through the error parameters for the currently displayed error
- Speed Up/Down Keys – Scrolls through the error codes and resets the error parameter to the first value
- Stop Key (pressed) – Jumps back one level
- Start Key – Resets error counter (clears out errors and error count)



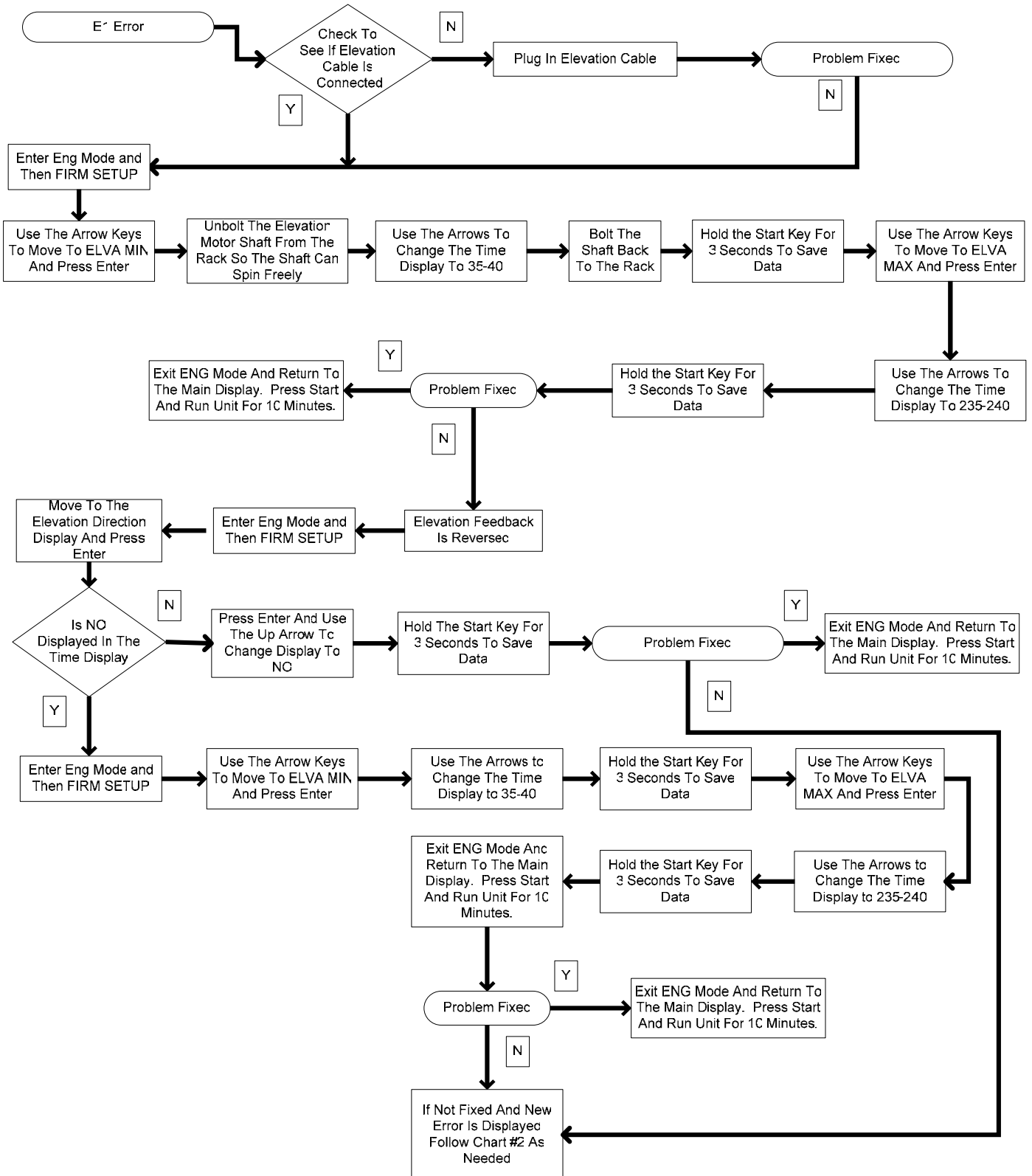
ELEVATION MOVEMENT RELATED ERRORS

E1 - Reverse Elevation Pot

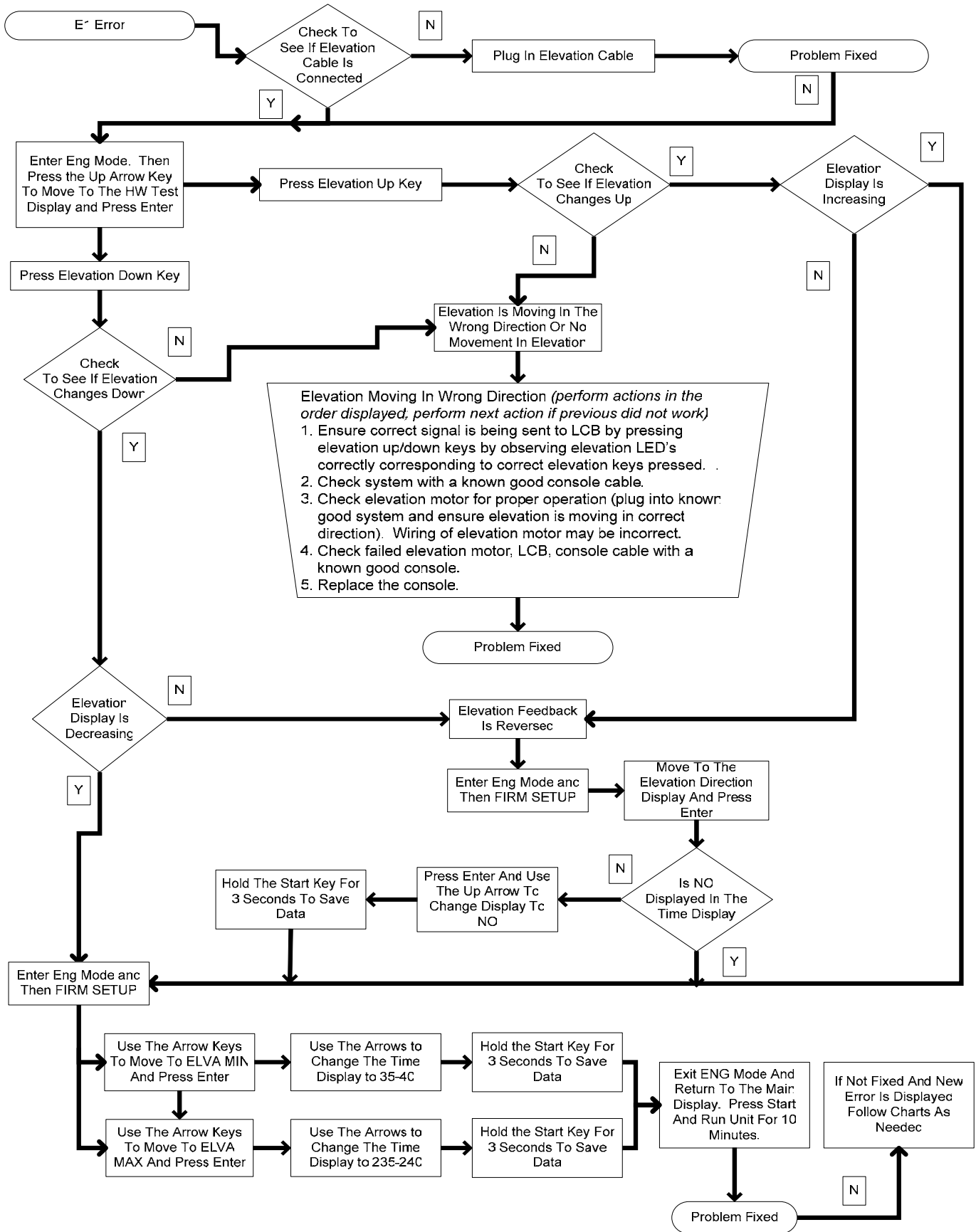
OVERVIEW

When elevation movement is commanded (e.g. elevation up) the elevation position feedback is expected to change in the correct direction (e.g. increase in pot value for an elevation up command). If the elevation position feedback changes in the opposite of the expected direction (e.g. elevation command up and elevation feedback decreases) a reverse elevation error (E1) is flagged.

Solution Flow Chart # 1



Solution Flow Chart # 2



E1 CORRECTIVE ACTION PARTS NEEDED



Part Number: SCD301017A
Description: J-Star Incline Motor 110v (T4, T5,)
Drawing Number: M02

Part Number: SCD401007A
Description: J-Star Incline Motor 220v (T4, T5,)
Drawing Number: M02

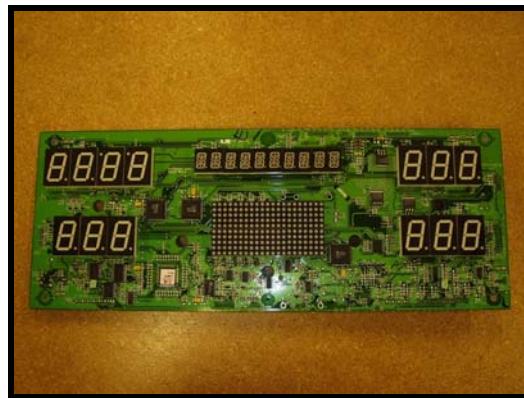


Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08

Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



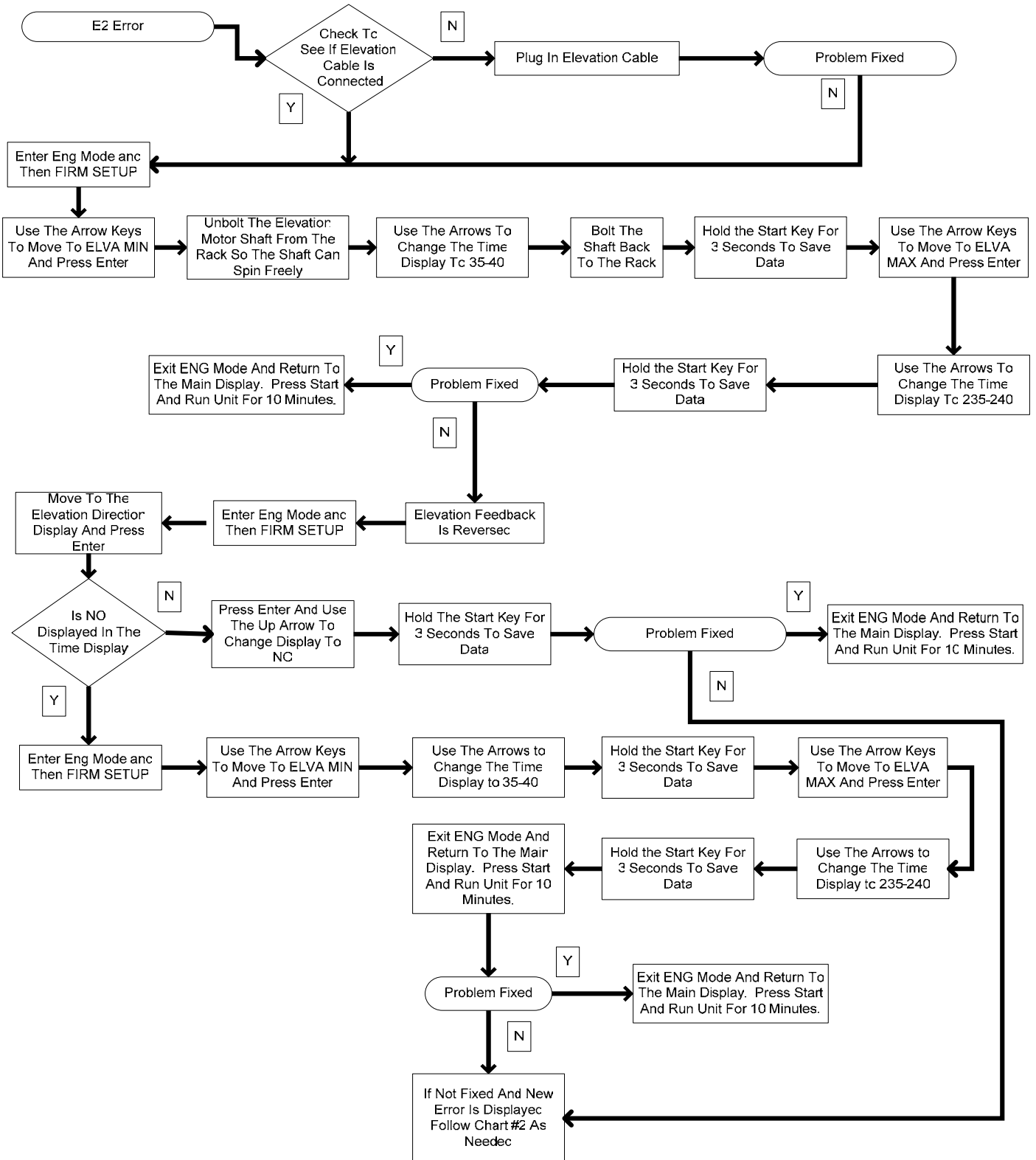
Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02

E2 – Elevation Out Of Range

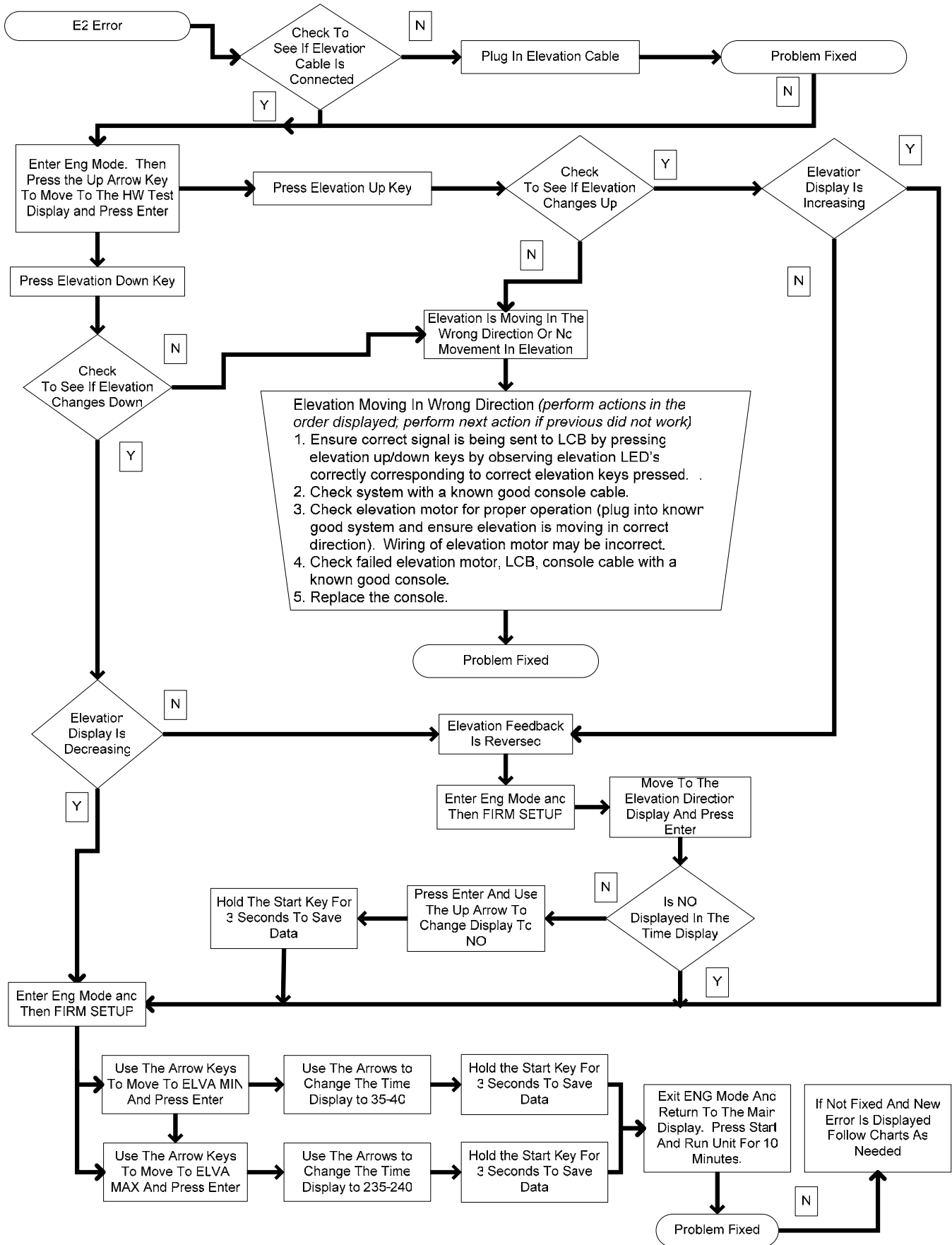
OVERVIEW

To prevent the elevation from stalling at the lower travel end or running off on the top end of travel the elevation position feedback is monitored. If the elevation position feedback is lower than expected (e.g. < 10) or higher than expected (e.g. > 250) then an E2 is called.

Solution Flow Chart # 1



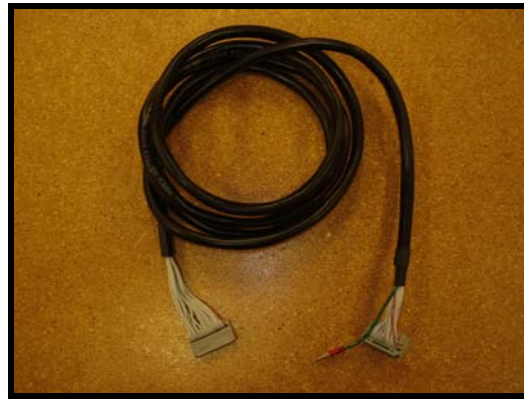
Solution Flow Chart # 2



E2 CORRECTIVE ACTION PARTS NEEDED



Part Number: SCD301017A
Description: J-Star Incline Motor 110v (T4, T5,)
Drawing Number: M02

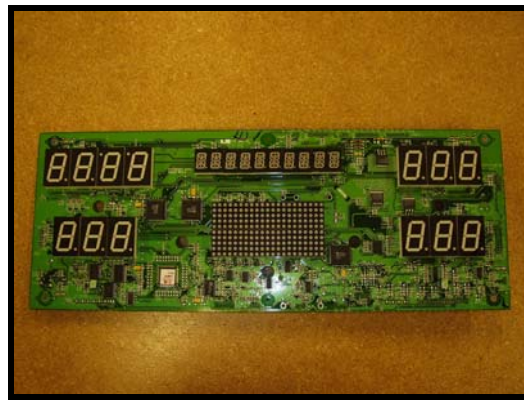


Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03

Part Number: SCD401007A
Description: J-Star Incline Motor 220v (T4, T5,)
Drawing Number: M02



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02

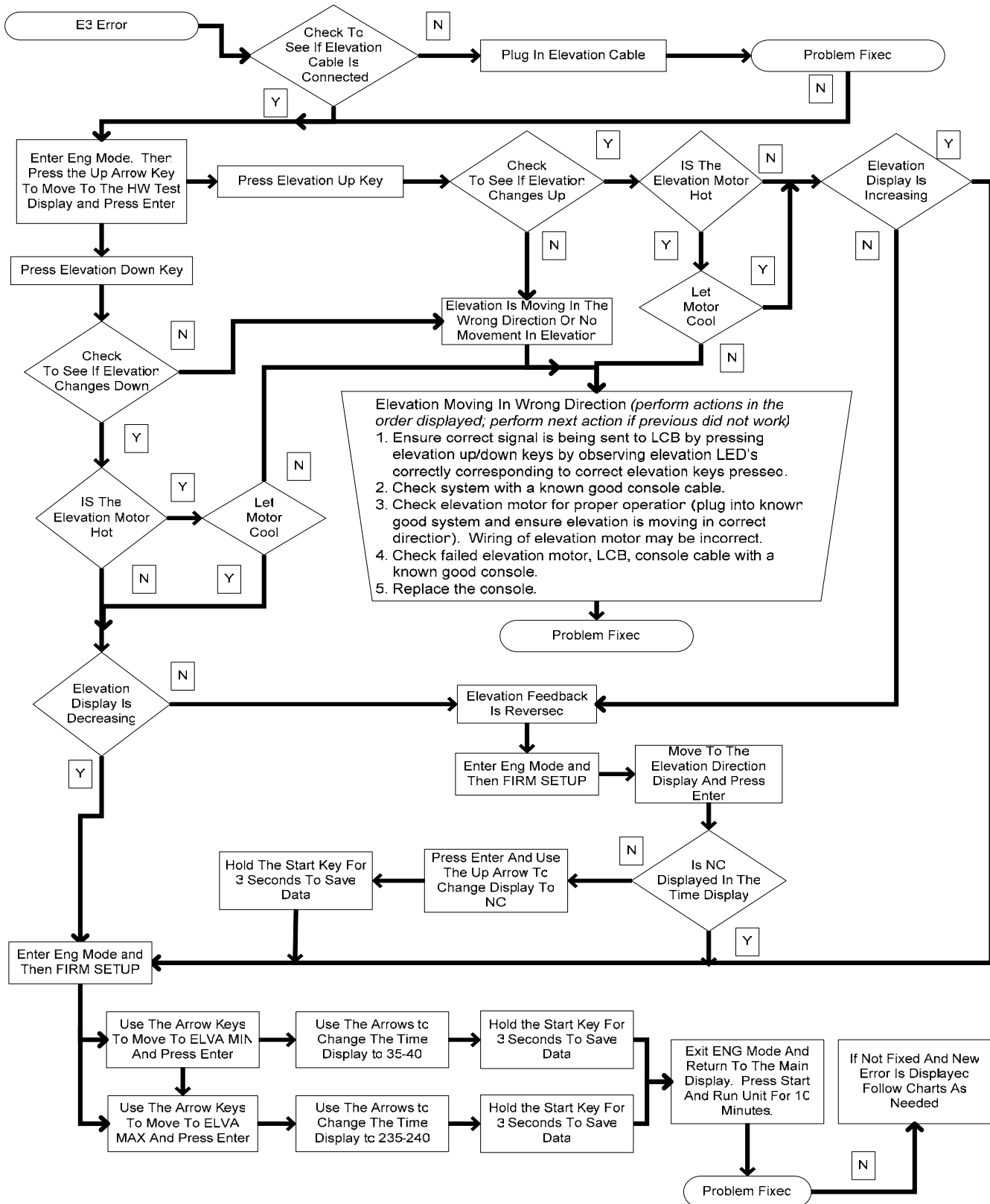
Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08

E3 – Elevation Stall

OVERVIEW

To reduce the risk of elevation motor/system damage or overheating in the event of a stall elevation stall conditions are monitored. If movement is commanded and the position feedback indicates no movement-taking place an elevation stall error is called. This problem has been caused most frequently by overheated elevation motor.

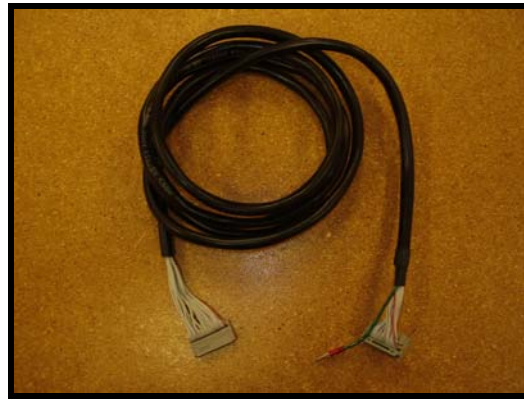
Solution Flow Chart



E3 CORRECTIVE ACTION PARTS NEEDED



Part Number: SCD301017A
Description: J-Star Incline Motor 110v (T4, T5,)
Drawing Number: M02

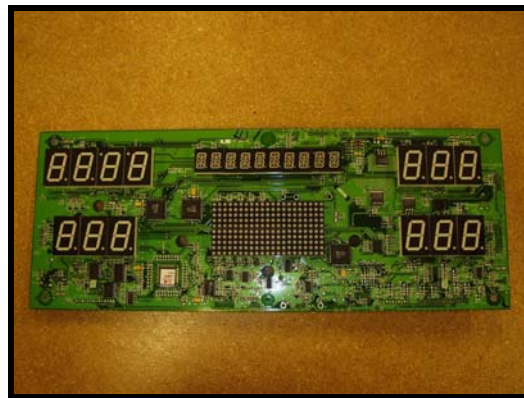


Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03

Part Number: SCD401007A
Description: J-Star Incline Motor 220v (T4, T5,)
Drawing Number: M02



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02

Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08

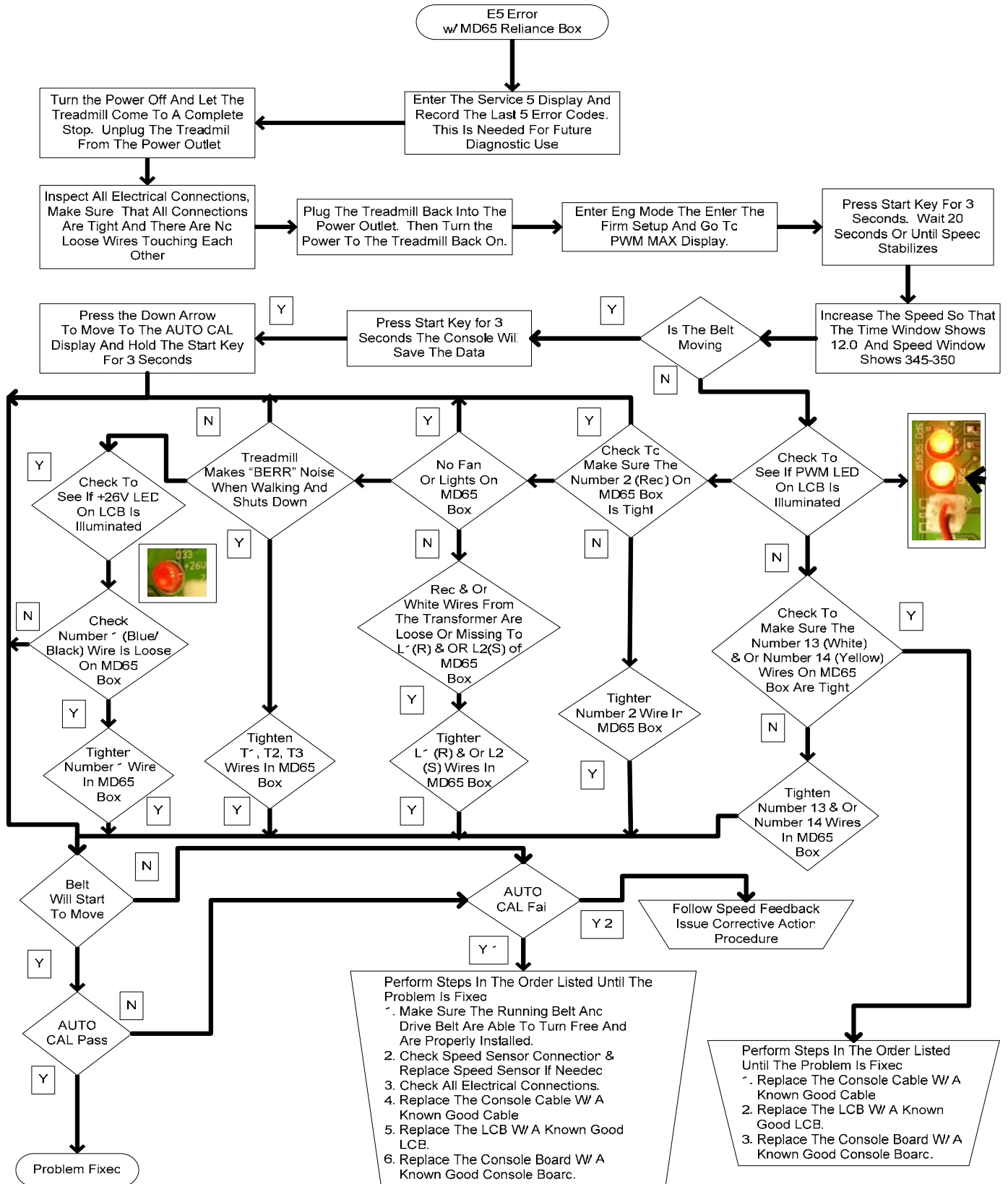
SPEED MOVEMENT RELATED ERRORS

E5 – Over-speed Error

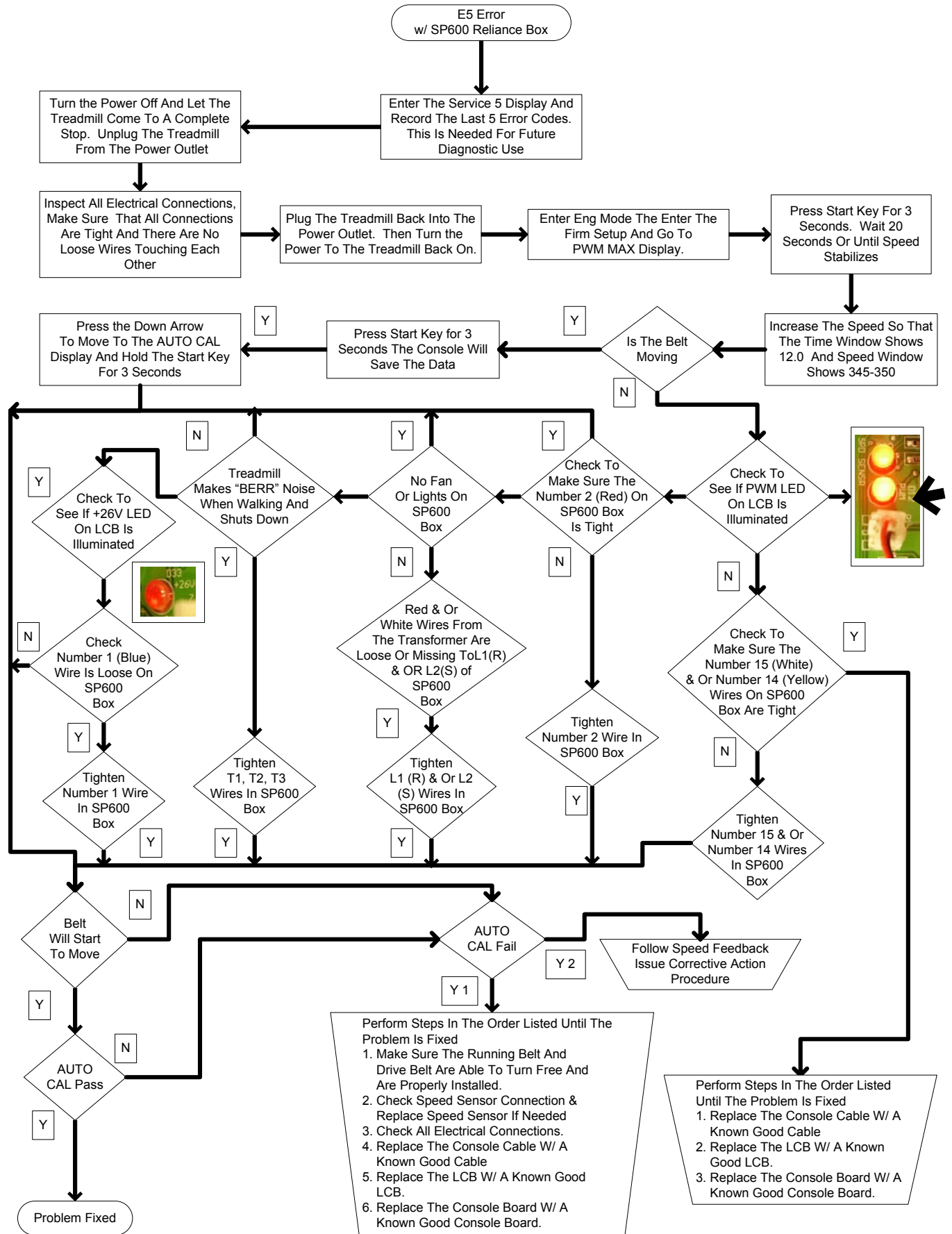
OVERVIEW

If the actual speed from the speed sensor exceeds the system maximum speed by a limit (currently 2 MPH) an over-speed error occurs (E5).

Solution Flow Chart MD65 Reliance Box



Solution Flow Chart SP600 Reliance Box



E5 CORRECTIVE ACTION PARTS NEEDED

Record parameter information recorded with this error for future analysis.

Speed Feedback Issues – See speed feedback issue trouble shooting guide in *the CORRECTIVE ACTION PROCEDURES – Speed Issues* section of this document.



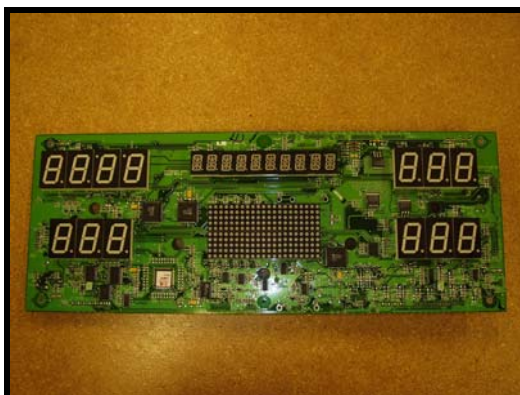
Part Number: MC0510080C
Description: Speed Sensor Wire
Drawing Number: P16



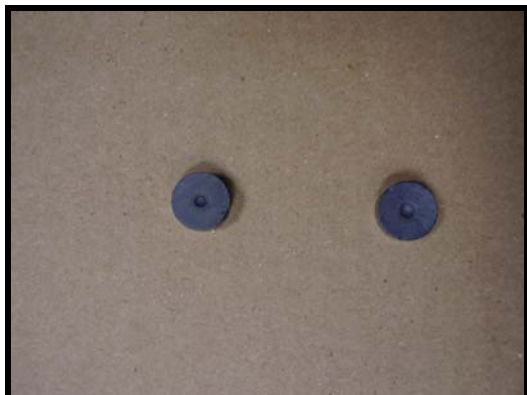
Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08
Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02



Part Number: MC0708009A
Description: Interaction Magnet (T4, T5)
Drawing Number: P15
Qty 2

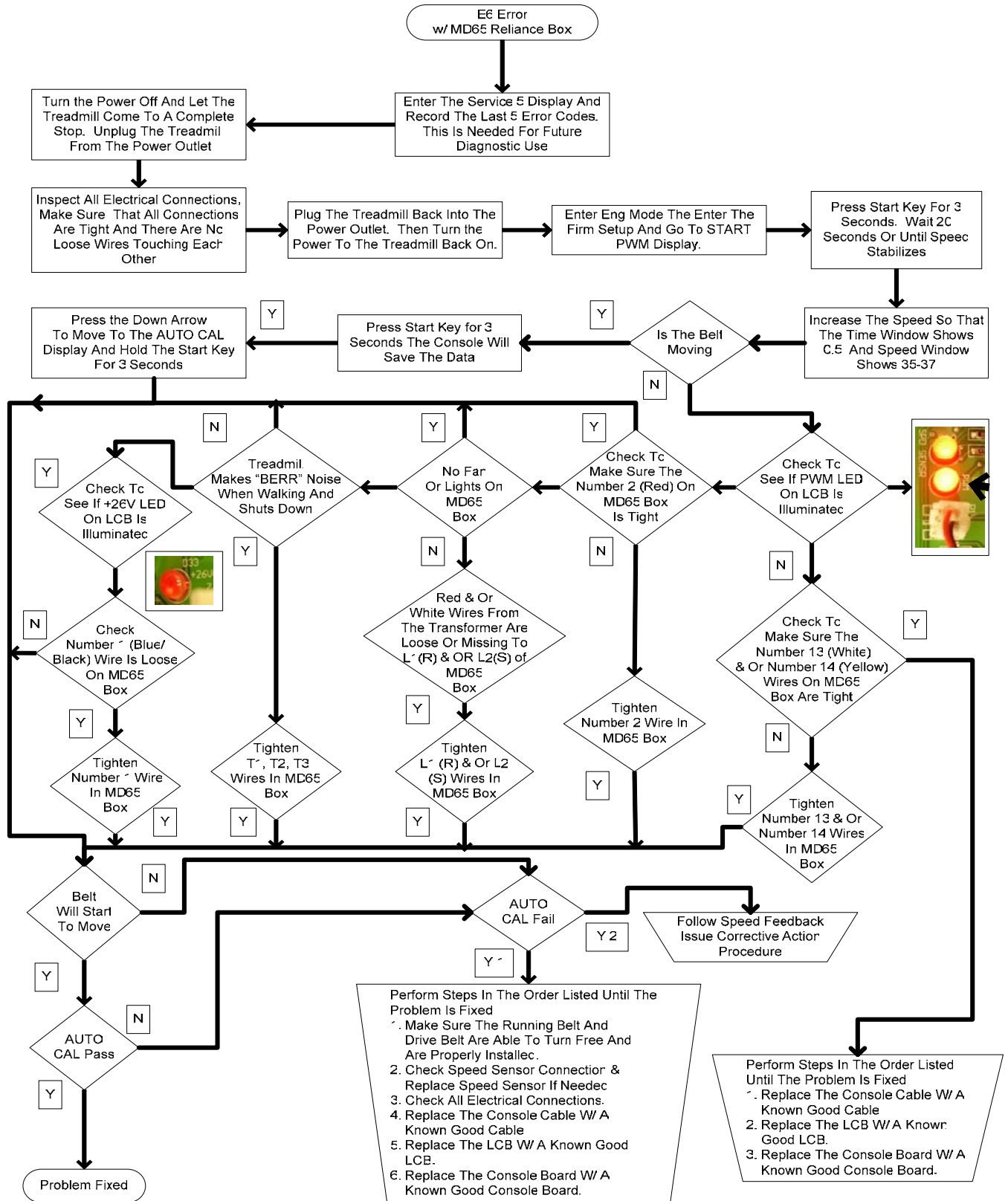
T5 / T4 Error Codes DGC5X Console Board W / IBC7X or IBC8X LCB

E6 – Runaway Belt Error

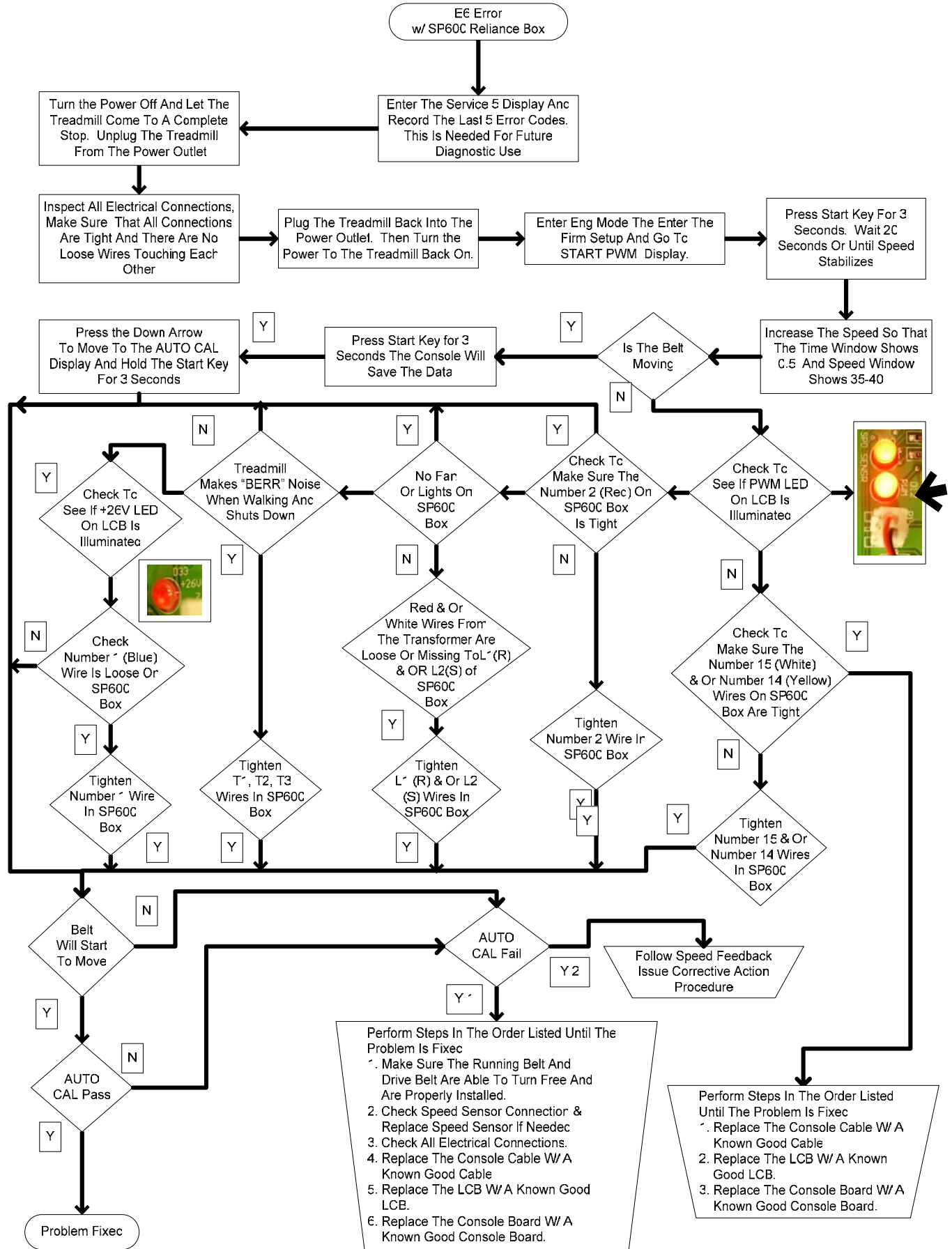
OVERVIEW

If the actual belt speed is greater than the target speed by a limit and increasing then an E6 error is called. E6 errors flag errors that will result in the belt “running away” or not responding to input.

Solution Flow Chart MD65 Reliance Box



Solution Flow Chart SP600 Reliance Box



E6 CORRECTIVE ACTION PARTS NEEDED

Speed Feedback Issues – See speed feedback issue trouble shooting guide in *the CORRECTIVE ACTION PROCEDURES – Speed Issues* section of this document.



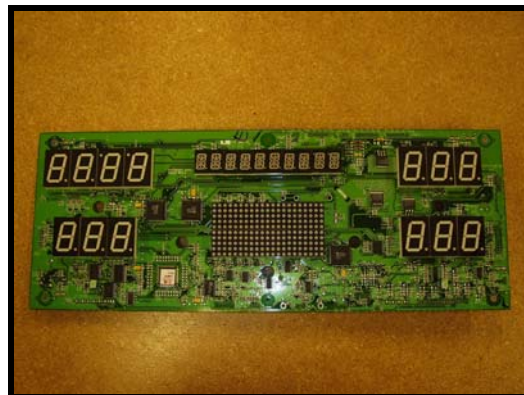
Part Number: MC0510080C
Description: Speed Sensor Wire
Drawing Number: P16



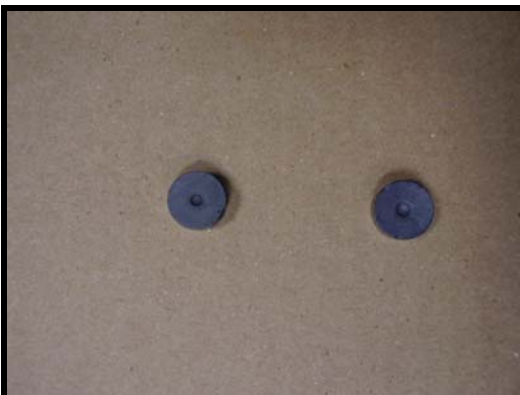
Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08
Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02



Part Number: MC0708009A
Description: Interaction Magnet (T4, T5)
Drawing Number: P15
Qty 2

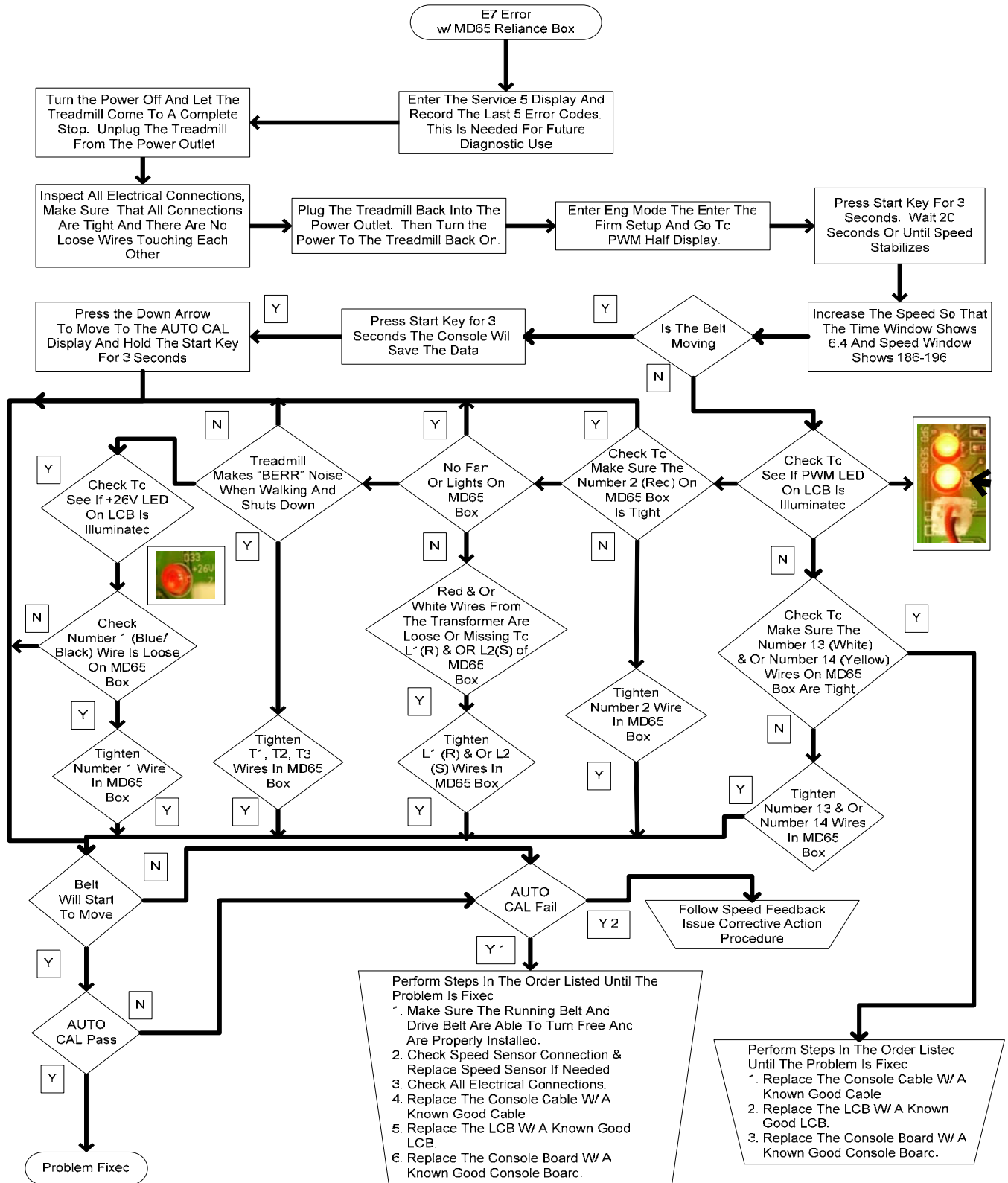
E7 – Speed Sensor Feedback Missing Error

OVERVIEW

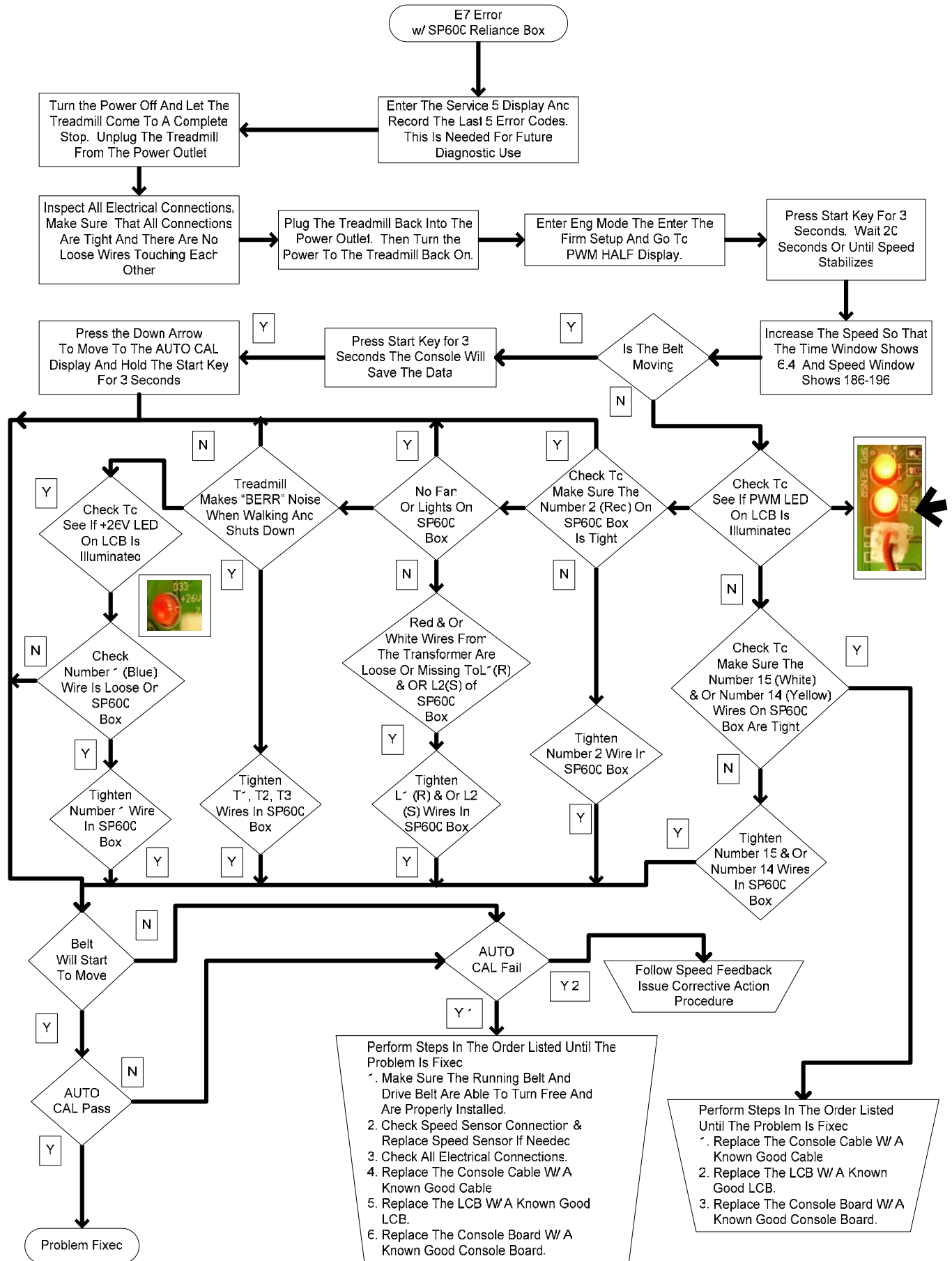
If no belt movement is detected several seconds after commanding belt movement a speed stall error (E7) is called.

First Check the SOFTWARE VERSION. If software is below 2.6 then upgrade console to 2.6 or higher. This will be a new console preprogrammed to new version and then sent out.

Solution Flow Chart MD65 Reliance Box



Solution Flow Chart SP600 Reliance Box



E7 CORRECTIVE ACTION PARTS NEEDED

Speed Feedback Issues – See speed feedback issue trouble shooting section in *the CORRECTIVE ACTION PROCEDURES – Speed issues* section of this document.



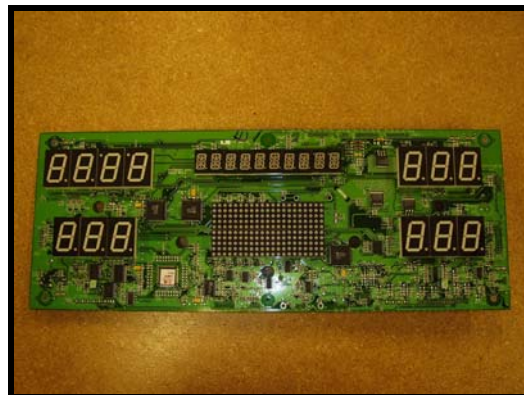
Part Number: MC0510080C
Description: Speed Sensor Wire
Drawing Number: P16



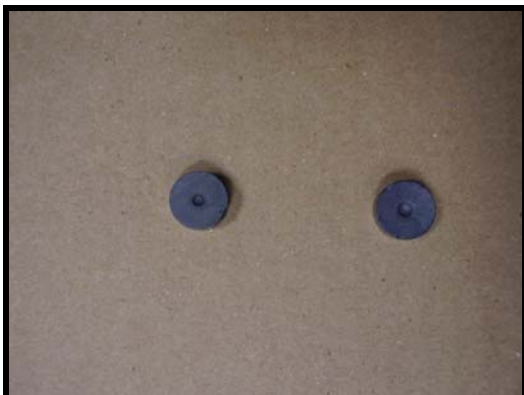
Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08
Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02



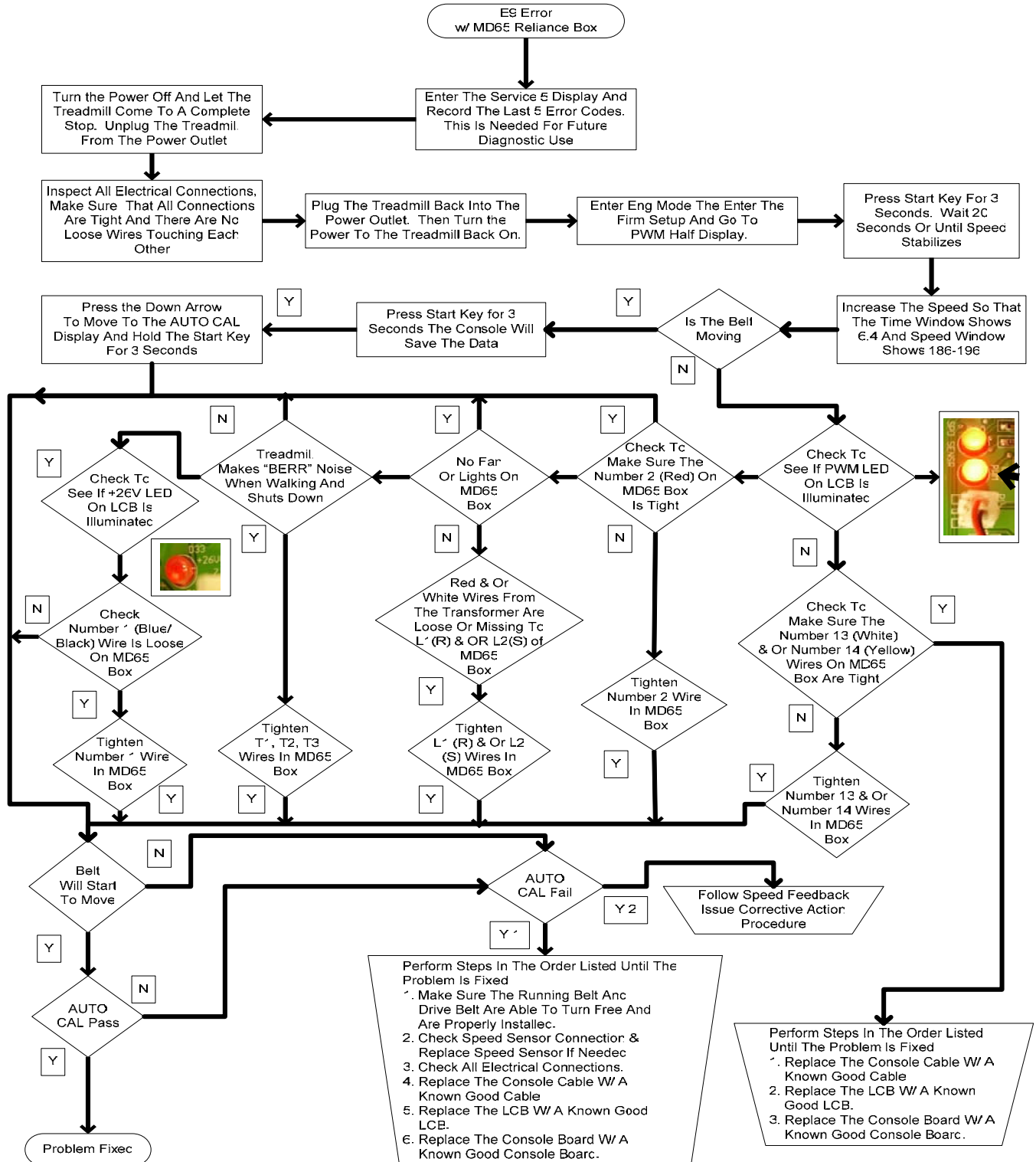
Part Number: MC0708009A
Description: Interaction Magnet (T4, T5)
Drawing Number: P15
Qty 2

E9 – Speed Range Error

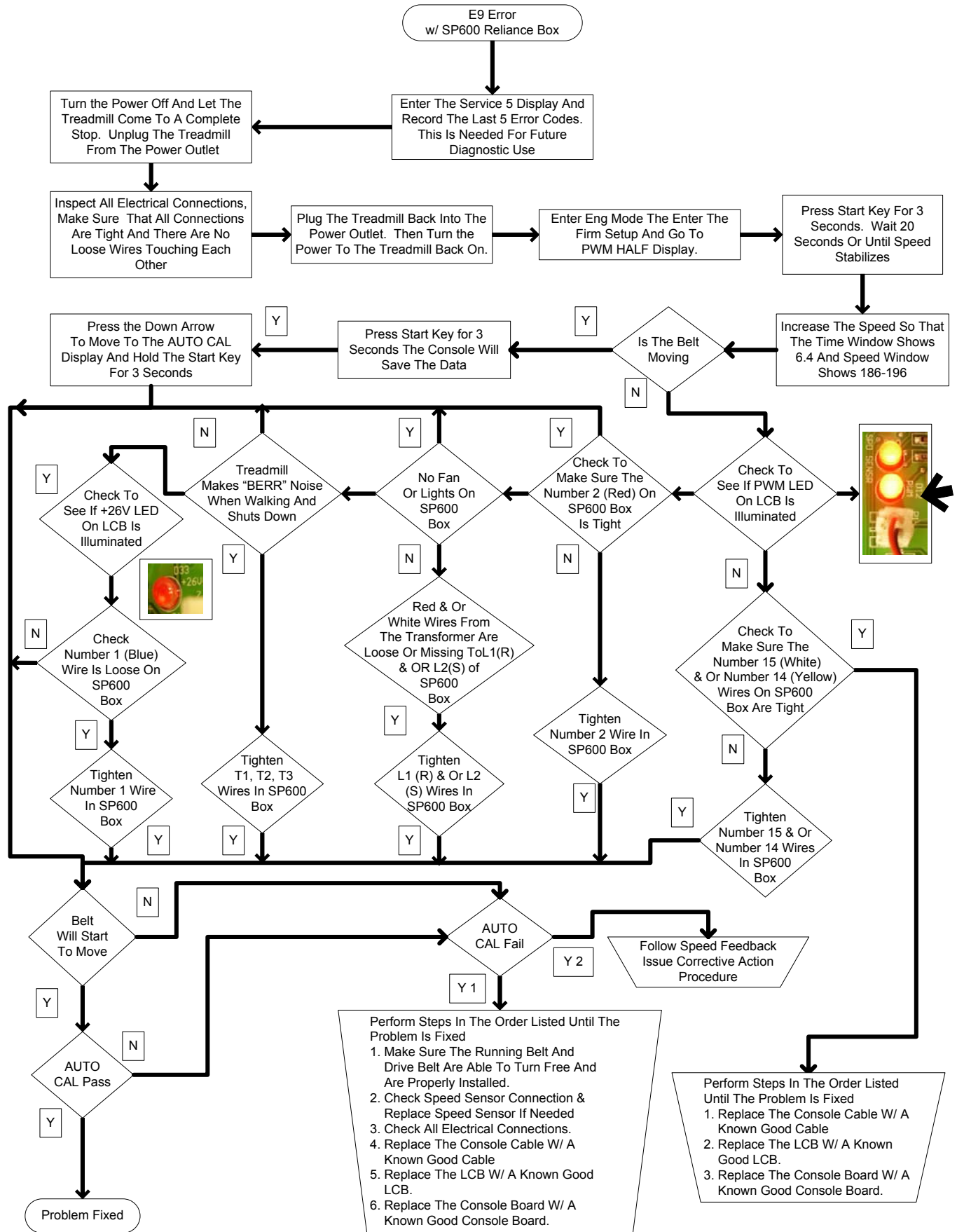
OVERVIEW During normal run time operation the value stored during auto calibration is used to initially set the speed (e.g. target speed = 12 MPH, PWM ticks = Maximum PWM = 363). Once the speed stabilized the actual speed is monitored and if different than the target speed the PWM value is adjusted until the actual speed matches the target speed. If the PWM value is changed by more than the amount of ticks required to change .8 MPH and the actual speed does not match the target speed then an E9 error is flagged. This error indicates the motor controller system is unable to maintain the target speed.

First Check the SOFTWARE VERSION. If software is below 2.6 then upgrade console to 2.6 or higher. This will be a new console preprogrammed to new version and then sent out.

Solution Flow Chart MD65 Reliance Box



Solution Flow Chart SP600 Reliance Box



E9 CORRECTIVE ACTION

Record parameter information recorded with this error for future problem analysis (see SERVICE 5 – ERROR LOG section of this document).

Ensure the belt is freely moving and is not binding, rubbing or otherwise held back.

Speed Feedback Issues – See speed feedback issue trouble shooting section in the *CORRECTIVE ACTION PROCEDURES – Speed Issues* section of this document.



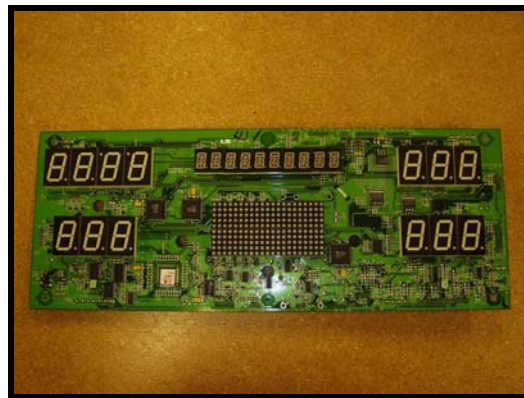
Part Number: MC0510080C
Description: Speed Sensor Wire
Drawing Number: P16



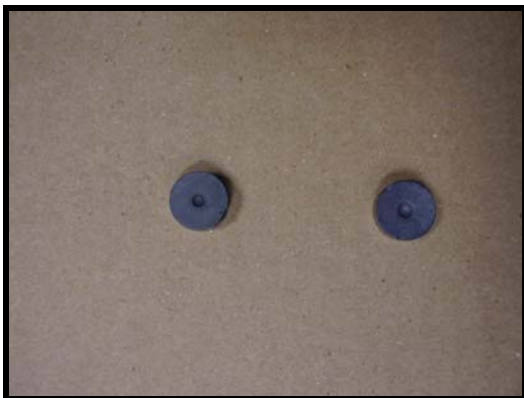
Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08
Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



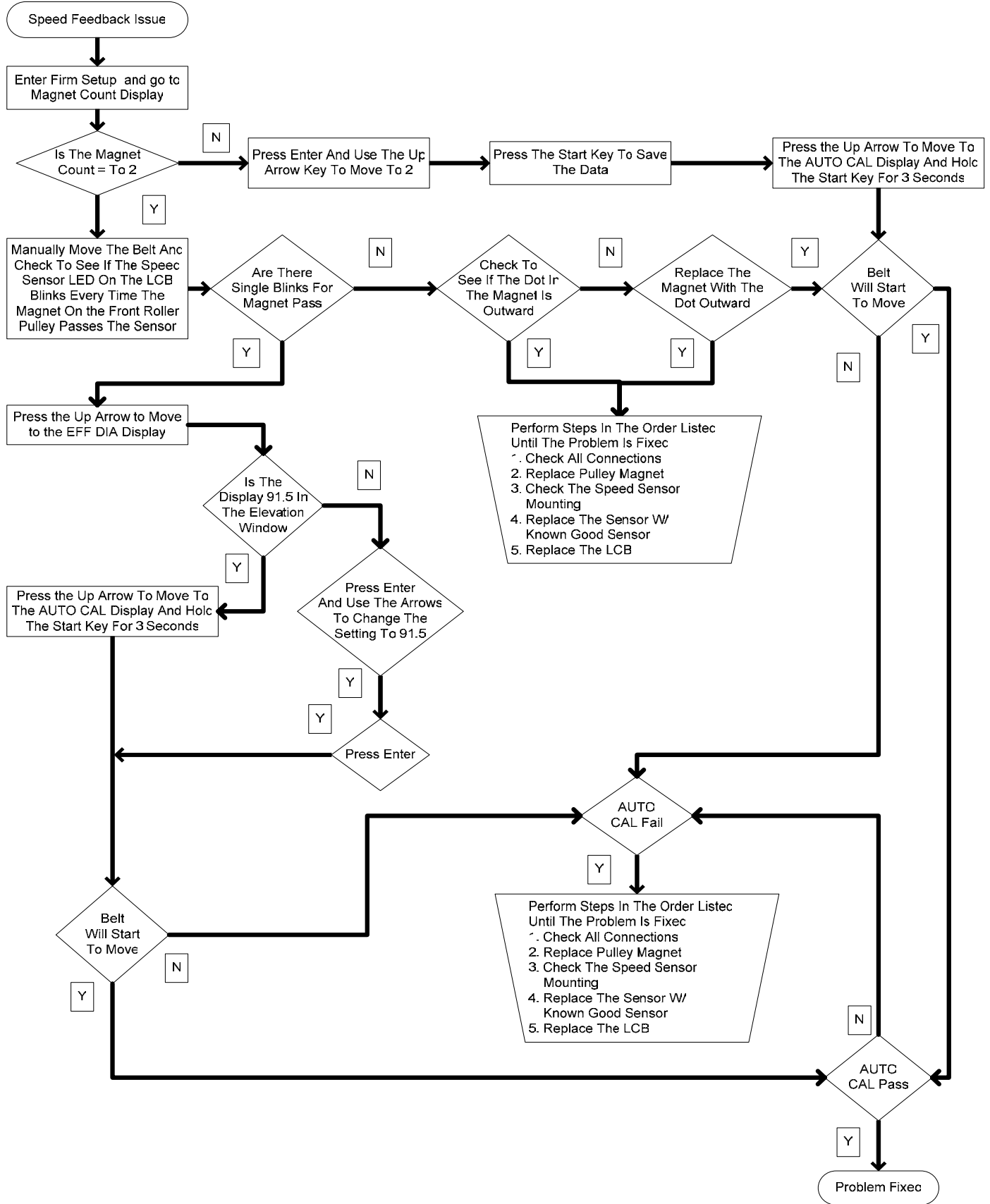
Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02



Part Number: MC0708009A
Description: Interaction Magnet (T4, T5)
Drawing Number: P15
Qty 2

SPEED FEEDBACK ISSUE CORRECTIVE ACTION PROCEDURES

Solution Flow Chart



SPEED FEEDBACK ISSUE CORRECTIVE ACTION PROCEDURES PARTS NEEDED



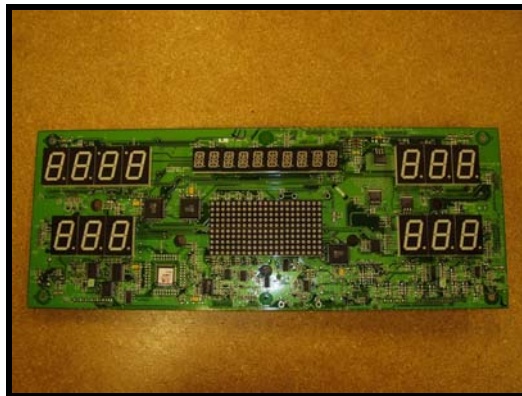
Part Number: MC0510080C
Description: Speed Sensor Wire
Drawing Number: P16



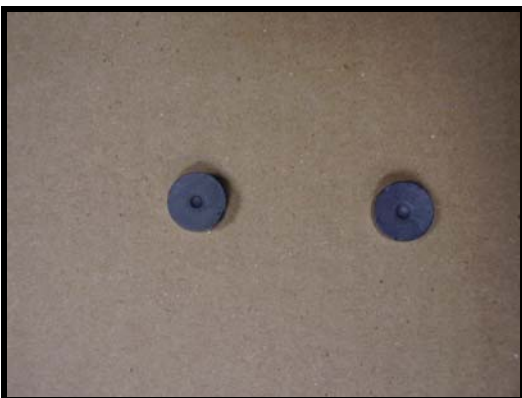
Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08
Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02



Part Number: MC0708009A
Description: Interaction Magnet (T4, T5)
Drawing Number: P15
Qty 2

OPERATIONAL ERRORS

E16 – Stuck key error

OVERVIEW

If a key press is detected for more than 45 seconds a stuck key error is flagged. This error is primarily caused by a faulty keypad but could be caused by other issues (object on the keypad).

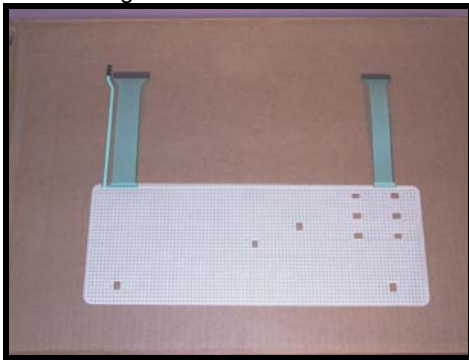
CORRECTIVE ACTION

1. First check all of the screws in the back of the console cover to see if they are too tight. If the screws are too tight this will pull the front face of the console back and cause the key pad to sick and flag an E16 Error.
2. Remove the back cover screws and check to see if the screws on the internal T brace are too tight. If the screws are too tight this will pull the front face of the console back and cause the key pad to sick and flag an E16 Error.

If loosening the screws does not fix this problem then you will need to replace the Key Membrane(s).

CORRECTIVE ACTION PARTS NEEDED

Reset system power. If error re-occurs replace the keypad with a known good keypad. If error still occurs replace console PCB with known good console PCB.



Part Number: MC0602216A
Description: Key Membrane Large (T4, T5,)
Drawing Number: N04



Part Number: MC0602187A
Description: Key Membrane Small (T5, T5x)
Drawing Number: N05



Part Number: MC0601138D
Description: Right Overlay (T5)
Drawing Number: N47



Part Number: MC0601130D
Description: Overlay Main (T5x)
Drawing Number: N01



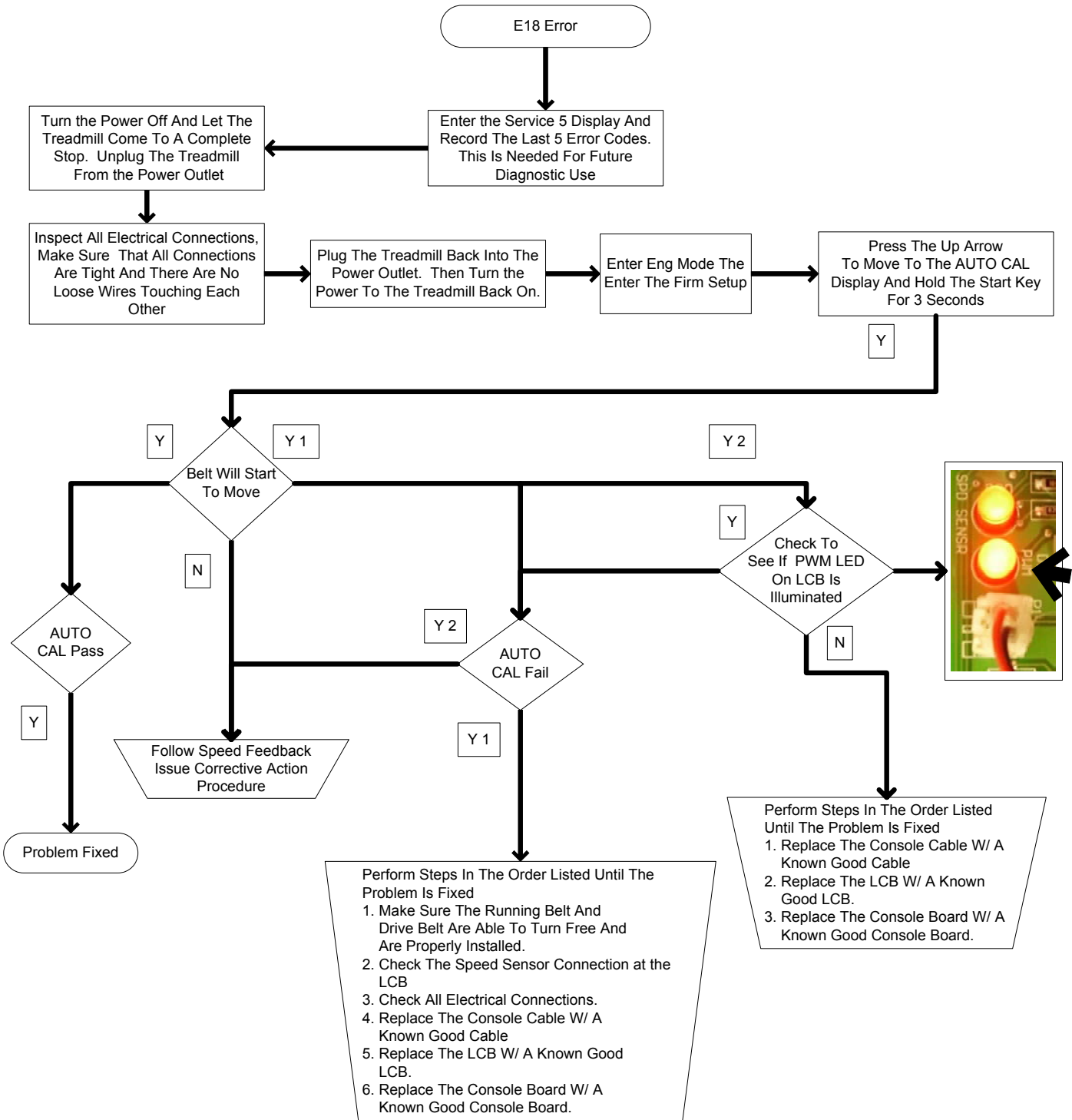
Part Number: MC0601142D
Description: Overlay Main (T4)
Drawing Number: N51

E18 – Safety switch test failure

OVERVIEW

If the actual speed exceeds limit set for safety switch test a safety switch test failure error occurs.

Solution Flow Chart



E18 CORRECTIVE ACTION PARTS NEEDED



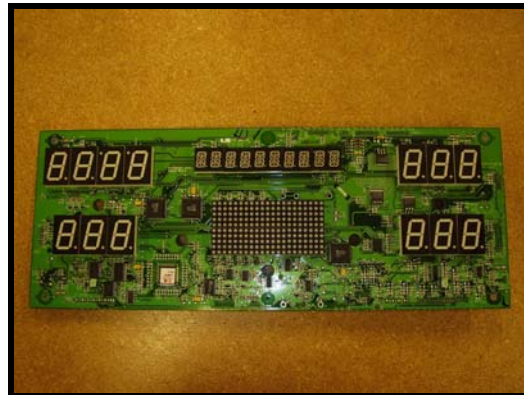
Part Number: MC0510080C
Description: Speed Sensor Wire
Drawing Number: P16



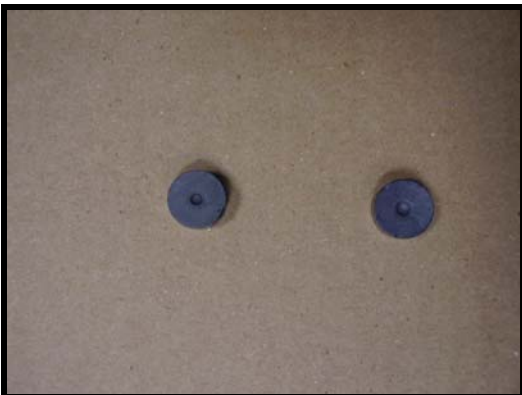
Part Number: MC0522005N
Description: Console Cable (T4, T5,)
Drawing Number: P03



Part Number: IBC7X (110V)
Description: Interface Board, 110v (T5)
Drawing Number: M08
Part Number: IBC8X (220V)
Description: Interface Board, 110v (T5)
Drawing Number: M08



Part Number: DGC5X
Description: Console Control Board (T4, T5,)
Drawing Number: N02



Part Number: MC0708009A
Description: Interaction Magnet (T4, T5)
Drawing Number: P15

E19 – NOVRAM Failure

OVERVIEW

If the values stored in non-volatile memory are out of limits or do not match the safety check value stored in non-volatile memory a NOVRAM failure occurs. The system attempts to re-initialize the non-volatile memory three times and if the NOVRAM check fails all three attempts a NOVRAM failure error (E19) is called.

CORRECTIVE ACTION

An E-19 error indicates the NOVRAM has critically failed and needs to be replaced. If an E19 error occurs the console should be reprogrammed with the current software version and the power should be toggled. If this does not clear the E-19 error the console board will need to be returned to Matrix for repair.

