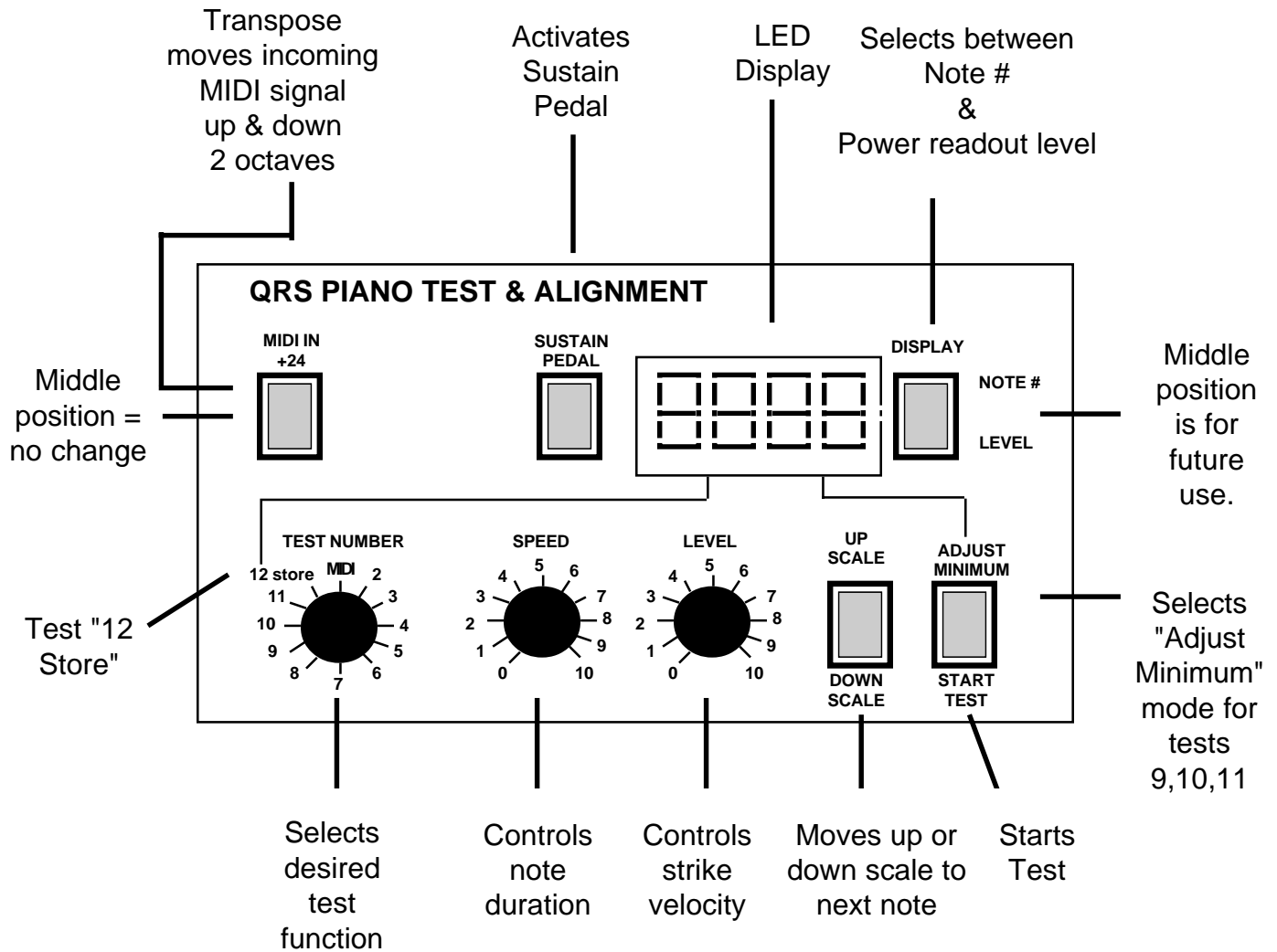


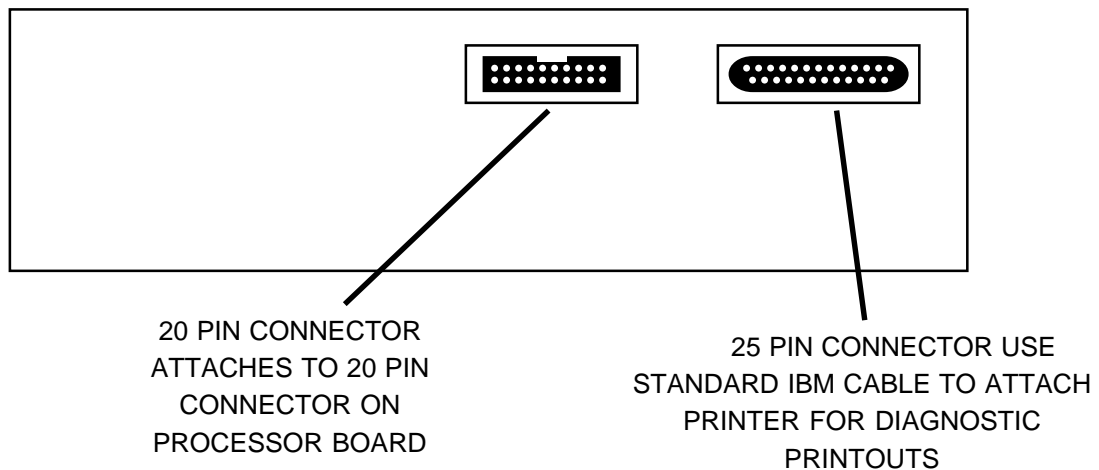
PART II. Installation and Alignment Procedures

Test and Alignment Procedures

Top Panel of Test & Alignment Box



Back Panel of Test & Alignment Box



PART II. Installation and Alignment Procedures

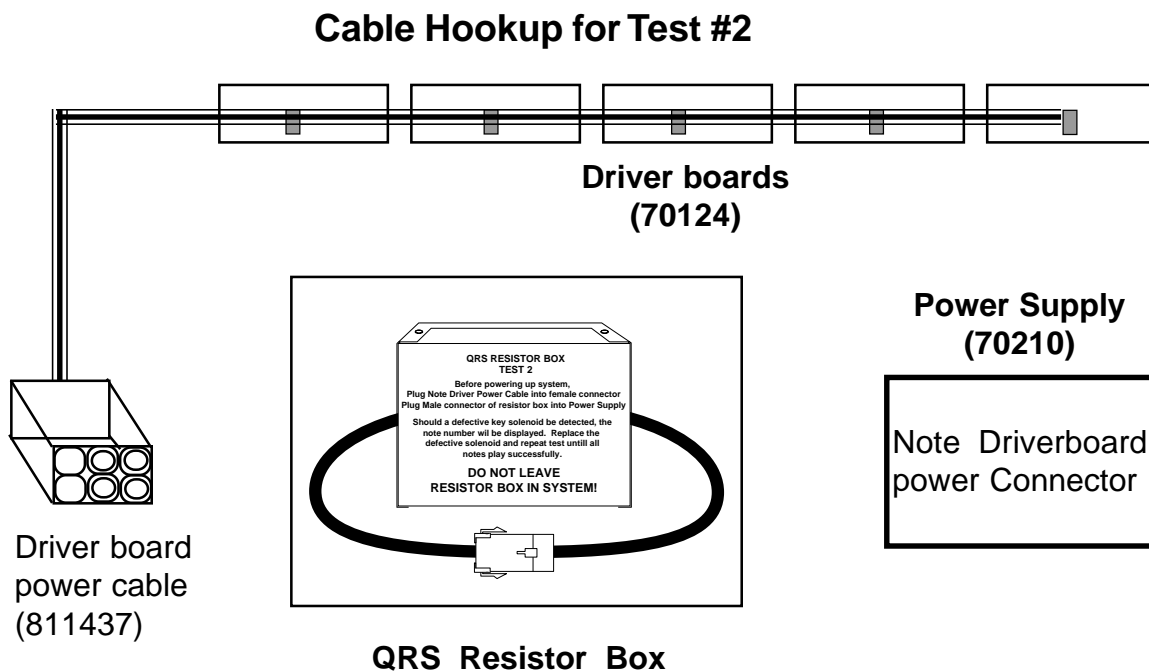
Test and Alignment Procedures

Test 1 (Transpose)

Test 1 is generally the last in a series of tests to be performed when aligning the system. It puts the system in a mode almost identical to an installed system without the installer alignment box connected. The operating controls on the user box work normally. MIDI data or CDs may be played in and delayed MIDI received out. The only difference is that the Transpose function +24/-24 will change the relationship of the MIDI-In and the keys which respond. Transpose +24 will move the incoming MIDI signal *up* 2 octaves and transpose -24 will move it *down* 2 octaves. The middle portion of the Transpose +24/-24 switch leaves the MIDI note numbers unchanged. This function was designed to allow an installer to play or test the entire piano key range with a small portable MIDI keyboard.

Test 2 (System Check)

Test 2 is the second test you perform. Be sure the power is off. This test prevents possible driverboard damage caused by shorted solenoids. The QRS Resistor box has two keyed connectors. One connector plugs into the power supply connector labeled "Note Driverboard Power". The other connector plugs into the note driverboard cable (811437). Turn the power on. The LEDs on the alignment box will flash a series of numbers. When the LEDs show "-02-" set the display switch "NOTE" and press "START TEST". The system will play all the notes once. Should a short be detected, the note number of the defective solenoid will be automatically displayed on the test alignment box LED. The system will then shut off the High Voltage. This particular solenoid must be replaced and the above test repeated until all the notes play successfully. The QRS Resistor Box should be connected only for this particular test. After the test, the system must be powered down and the power supply Low Voltage and High Voltage LED's must be allowed to go off. The QRS Resistor Box is then removed from the system. The driver board power cable plugged directly into the power supply; and the system turned on again.



PART II. Installation and Alignment Procedures

Test and Alignment Procedures

Test 3 (Full Scale Cycle)

Test 3 plays each key sequentially and is good for breaking in the system. Press START TEST to activate the test. The Speed pot controls note duration and the Level pot directly controls loudness. If the Level pot is turned down, the saved (or default) minimum modulations may come into play and the note will use the current minimum instead of the Level pot value. The minimum default value is set at 25. If the Level pot is above the minimum, for any note, the note will play at the Level pot value. Putting the Display switch to "Level" will show the value being used. If the speed dial is turned to zero each key will be held down for 5 seconds in order to check for full key dip.

Momentarily pressing the Up Scale or Down Scale switch will change the direction of play. The Display switch changes the information shown on the display. Note # shows the solenoid number being played (5-84). Level displays the amount of power for the note. The center will display the note length in milliseconds.

Test 4 (Single Note Repeat)

Test 4 repeatedly plays a single note. The SPEED, LEVEL and DISPLAY controls operate as in test 3. The Up Scale/Down Scale switch moves to the next note. The program sets a limit of 150 strikes per solenoid. This is to prevent overheating a single solenoid. If the limit is reached, the system will exit test 4 and blink: - 04 -. (Of course, one can always press the Start Test switch and play the same note 150 more times.) If the speed knob is set to zero, the note will stay held for 5 seconds.

Test 5

Tests 5 is for future use.

Test 6 (Pedal Solenoid Repeat)

Tests 6 will continuously activate the pedal solenoid at the current power setting. This is a good test for the breaking in the pedal solenoid.

Test 7 (Diagnostics Printout)

Test 7 will print out a system diagnostics status report to an IBM printer and is generally performed after the system has been aligned. An IBM compatible printer and cable must be connected to the installer Test & Piano Alignment Box. Press START TEST to begin printing. The printing routine does not use any special control codes, so it should print properly on most IBM compatible printers. The routine sends both carriage return and line feed commands. If the printer is not ready, the LED's will display "A30". After a few seconds, it will give up trying to print. The system may send some garbled codes during power up, causing the printer to go off line or print in an unexplained manner. For this reason, the printer should be turned on after the piano system is powered up.

The report title displays the version letter (currently E). If the report style changes in the future, the version letter will change. The report is in three sections. Except for diagnosing system problems, the second section will be the one of particular interest.

Test 8 (For future use)

Test 8 is used to store the power settings for the optional soft shift pedal solenoid. This test responds exactly as in test 9

PART II. Installation and Alignment Procedures

Test and Alignment Procedures

Typical Printout

PAGE 1

QRS Pianomation MIDI Diagnostic Report - Ver. E

Piano description, SN# _____

Installed by _____

Address _____

City _____ State _____ ZIP _____ Country _____

Phone () _____ FAX () _____

Dealer code number _____ Date Installed ____ / ____ / ____

Customer name _____

Address _____

Phone _____

If a problem should occur, please describe below:

For technical help please call 941-597-5888 or FAX 941-597-3936

QRS RMA # _____

PAGE 2

QRS Pianomation MIDI Diagnostic Report - Version E

Power-on count 0001

Software version 1.35

EEPROM version 1.30

Number of keys 80

Minimum key solenoid ON levels set in Tests 10 & 11

	0	1	2	3	4	5	6	7	8	9
10						25	25	25	25	25
20	25	25	25	25	25	25	25	25	25	25
30	25	25	25	25	25	25	25	25	25	25
40	25	25	25	25	25	25	25	25	25	25
50	25	25	25	25	25	25	25	25	25	25
60	25	25	25	25	25	25	25	25	25	25
70	25	25	25	25	25	25	25	25	25	25
80	25	25	25	25	25					

Key solenoid HOLD level (fixed) = 15

Sustain pedal solenoid ON level (Test 9) = 50

Sustain pedal solenoid HOLD level (fixed) = 35

PART II. Installation and Alignment Procedures

Test and Alignment Procedures

This section shows the count of individual system errors. All of these errors are of the type that would cause the system to shut down and blink the processor board LED and the red LED on the User Box.

A 10	Processor ram	0
A 11	Dual port ram	0
A 12	Program Eprom	0
A 13	EEprom configuration ram	0
A 20	A to D converter timeout	0
A 21	MIDI buffer overflow	0
A 22	Event buffer overflow	0
A 90	Rail current detection	0
A 91	Rail current at all off	0
A 92	Pedal current detection	0
A 93	Pedal current at all off	0
A 101	Program internal 101	0
A 102	Program internal 102	0
A 103	Program internal 103	0
A 104	Program internal 104	0
A 105	Program internal 105	0
A 106	Program internal 106	0

Test 9 (Pedal Solenoid Power)

Test 9 is used to adjust the power setting for the sustain pedal solenoid. This test is usually performed after test 2. The Display switch should be set to level. After the START TEST to activate the test. The LED's will display the current power setting for the sustain pedal. Use the Sustain Pedal switch on the User Box to actuate the pedal. To change the power level, press the ADJUST MINIMUM switch once. The "ADJUST MINIMUM" and "12 Store" decimal points will come on. Now the Level pot may be used to change the power setting. The LEVEL pot should be increased or decreased dependent on the power required to activate the sustain silently. The "12 STORE" decimal point will stay on to remind you to permanently save your changes to the processors memory (Test 12). To store the current setting into the processors memory turn to test 12 and press START TEST. The final setting should be doubled checked after the pedal has had a chance to warm up. Next, proceed to test 11.

Test 10 (Full Scale Minimum)

Test 10 will play in manner similar to test 3. The notes will be playing at their current minimum power settings. These values are displayed with the DISPLAY switch set to level. The LEVEL pot does nothing now. If the minimums are too low, the notes may not play at all. If the minimum levels need changing, momentarily press the ADJUST MINIMUM Switch. The fourth decimal point will light as a reminder that you are in the adjust mode. The first decimal point will light to remind you to permanently store any adjustments you make. Now the Level pot will change the minimums for all notes that play. When a satisfactory balance has been reached, allow the piano to complete one more full keyboard sequence to apply the final chosen value to all of the notes. This completes the "gross" adjustment of the minimums. It is important to note that the new values are, at this point, only stored in the system's temporary memory. It is important to note that all power setting done in test 11 can be reprogrammed by this test. Permanent storage to EEprom is done in Test 12. If you don't want the new values stored, just turn the system off without doing Test 12.

PART II. Installation and Alignment Procedures

Test and Alignment Procedures

Test 11 (Single Note Minimum)

Test 11 repeatedly plays individual notes so each key solenoid power level can be set. Upon entering this test, the piano will play in a manner similar to Test 4. A single note will begin playing at its currently power setting or at the default setting. If you want to change the power setting for that note, momentarily press the ADJUST MINIMUM Switch. The fourth decimal point will light as a reminder that you are in adjust mode. The first decimal point will light to remind you to permanently store the adjustments you make. Now the LEVEL pot will adjust the minimum power setting for the note that is playing. When you are satisfied with the lowest setting (hammer striking the string), momentarily press the UP SCALE or DOWN SCALE switch. The new value will be temporarily stored, and the piano will begin playing the next note at its current minimum. The adjust minimum decimal point will be off. In this test, the ADJUST MINIMUM switch must be pressed for each note that needs to be changed. Continue this process until all the notes play quietly and evenly. Permanent storage to the processors memory is done in test 12. If you don't want the new values to be stored, just turn the system off without doing Test 12.

Test 12 (Store to memory)

Test 12 stores all the changed power settings into the processors memory. Press "START TEST" the permanent storage routine to begin. The "12 Store" decimal point (remember to save) will turn off, indicating that the changes have been "permanently" stored.

SPEED KNOB

The speed knob is generally used most in test 11. It dictates the amount of time the solenoid is activated (50-140 milliseconds). While in test 11, a lower setting (140ms) will permit the system to play at a lower volume level and with a wider dynamic range. This is set to the 1 position throughout test 11

LEVEL KNOB

The level knob is generally used most in test 11 and 9. It dictates how much power is going to be stored into the computers memory (i.e., key and pedal solenoid). While in test 11 and 9 determine by ear how much power is required to sufficiently strike the hammers against the strings. In the case of the pedal solenoid, set the power level so the pedal activates silently. These settings will be stored in the memory only after test 12 is performed.

TEST NUMBER KNOB

This knob is used to select which test mode you want to access.