Exhibit AB

QSI MATERIALS INCORPORATED INTO JMRI SOFTWARE

QSI Published Manual
dated 16 February 2005, page 161
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Jacobsen
Court Doc 237-31, Exhibit AD, page 13
October 2008


```
<variable label="Output 12 - Forward/Reverse Only" CVname="53.12.0"
default="178" comment="QSI" item="CV53.12.0">
  <enumVal>
    <enumChoice choice="Dynamic Brakes" value="5" />
    <enumChoice choice="Long Air Let-off" value="9" />
    <enumChoice choice="Short Air Let-off" />
    <enumChoice choice="Mute" value="64" />
    <enumChoice choice="Doppler Shift" />
    <enumChoice choice="Dim Headlight" value="98" />
    <enumChoice choice="Reverse Light" />
    <enumChoice choice="Automatic Cab Lights" />
    <enumChoice choice="Directional Mars Light" />
    <enumChoice choice="Mars Light" />
    <enumChoice choice="Strobe Mars Light" />
    <enumChoice choice="Number Board Lights" />
    <enumChoice choice="Directional Headlight + Directional Mars Light" value=
    <enumChoice choice="Directional Headlight + Directional Ditch Lights" />
    <enumChoice choice="Directional Ditch Lights" />
    <enumChoice choice="Ditch Lights" />
    <enumChoice choice="Strobe Ditch Lights" />
    <enumChoice choice="Cruise Control" value="177" />
    <enumChoice choice="Scale mph Report and Status Report" />
    <enumChoice choice="Coupler Effect" value="211" />
    <enumChoice choice="Squealing Brakes" value="215" />
    <enumChoice choice="Squealing Brakes + Air Brakes" />
  </enumVal>
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Feature ID	Feature	Signal Type	Allowed States
102	Directional Mars Light	LA Toggled	All
103	Mars Light	LA Toggled	All
104	Strobe Mars Light	LA Toggled	All
105	Number Board Lights	LA Toggled	All
107	Directional Headlight + Directional Mars Light	LA Toggled	All
108	Directional Headlight + Directional Ditch Lights	LA Toggled	All
109	Directional Ditch Lights	LA Toggled	All
110	Ditch Lights	LA Toggled	All
111	Strobe Ditch Lights	LA Toggled	All
144	Start Up	PA Momentary	NFF/NFR
145	Shut Down	PA Progressive	NFF/NFR
176	Air Brakes	TA-SD Toggled	FWD/REV
178	Status Report	TA Momentary	FWD/REV
177	Cruise Control	TA-SD Toggled	NFF/NFR
211	Coupler Effect	TA Enable and TA Momentary	FWD/REV
215	Squealing Brakes	TA Momentary	All
216	Squealing Brakes + Air Brakes	TA Momentary	FWD/REV
217	Pumps	LA Toggled	NFF/NFR

Feature ID	Feature	Signal Type	Allowed States
0	Null Output		All
1	Whistle	LA Toggled	All
3	Bell	LA Toggled	All
5	Dynamic Brakes	LA SD-Toggled	All
8	Blower Hiss/Diesel Cooling Fans	LA Toggled	All
9	Long Air Let-off	TA Momentary	All
10	Short Air Let-off	TA Momentary	All
12	Pop-off	TA Momentary	NFF/NFR
13	Blow Down	TA Momentary	NFF/NFR
14	Injector	TA Momentary	NFF/NFR
64	Mute	LA-SD Toggled	All
65	Doppler Shift	TA Momentary	FWD/REV
96	Directional Headlight	LA Toggled	All
97	Directional Reverse Light	LA Toggled	All
98	Headlight	LA Toggled	All
99	Dim Headlight	LA Toggled	All
100	Reverse Light	LA Toggled	All
101	Automatic Cab Lights	LA Toggled	All

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