

**DETAIL SPECIFICATION FOR
HIREL 255 RELAYS**

**RELAYS, HIGH RELIABILITY,
ELECTROMECHANICAL, LATCHING, DPDT,
LOW LEVEL TO 2.0 AMPERE,**

TR-HIREL-1/255

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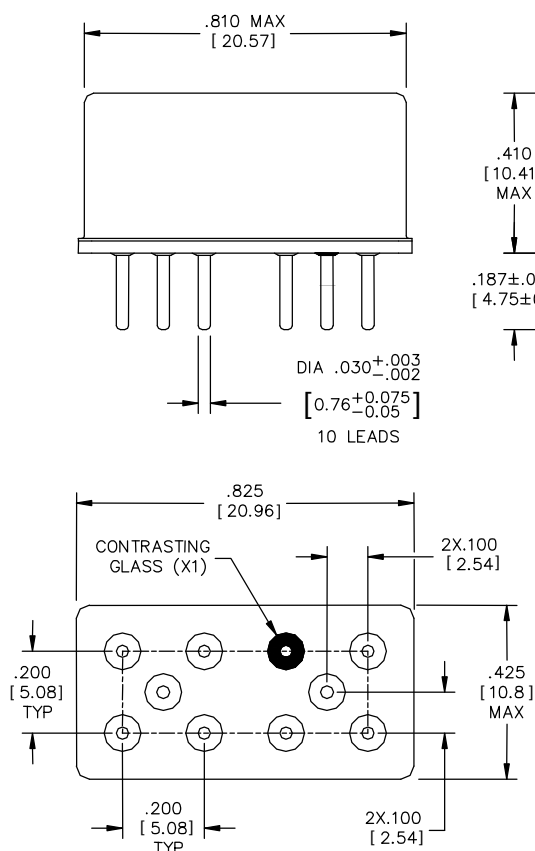
DETAIL SPECIFICATION FOR 255 RELAYS

Relays, High Reliability, Electromechanical, Latching, DPDT, Low Level to 2.0 Amperes

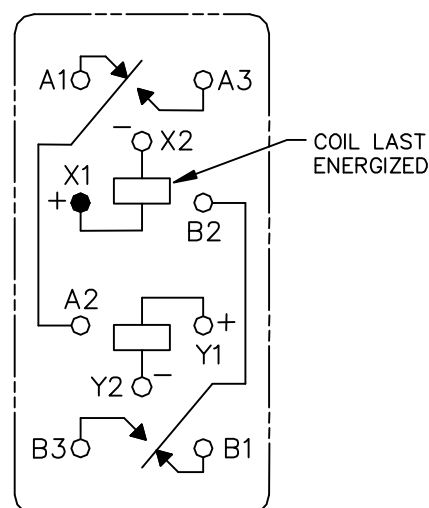
1. SCOPE

The performance and testing specifications for the above-referenced product are set forth in this detail specification. References to TR-HIREL-1 are to the most recent version thereof; in the event of conflict between this detail specification and TR-HIREL-1, the specifications set forth in this detail specification shall prevail.

**Figure 1
Outline dimensions**



**Figure 2
Terminal Locations and
Circuit Diagram (bottom view)**



Notes to Figures 1 and 2:

1. The standard configuration is shown in Figure 1.
2. Dimensions are in inches. Metric equivalents in mm are given in bracket parentheses.
3. Unless otherwise specified, the tolerance on dimensions is ± 0.010 in. (± 0.254 mm).
4. Circuit diagrams shown in Figure 2 are terminal views (as seen from the bottom of the relays).
5. Terminal numbers are not marked on the relays.

2. RELAY CHARACTERISTICS

2.1. General Data

2.1.1. Contact arrangement

DPDT (2 Form C).

2.1.2. Temperature range

−65 °C to +125 °C.

2.1.3. Dimensions and configuration

See Figure 1 and 2.

2.1.4. Weight

13. g (0.46 oz) maximum.

2.1.5. Seal

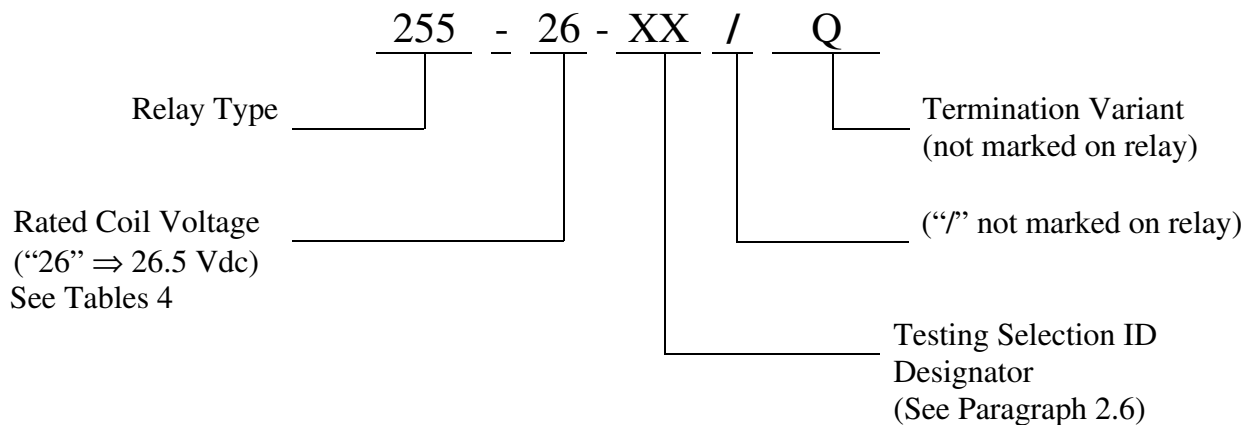
Hermetic. Leak rate 1×10^{-8} atm-cm³/s of air maximum.

2.1.6. Finish of the terminals

Gold plated or solder coated with Sn60 or Sn63, solder per ANSI/J-STD-006.
Refer to Figure 1 herein and TR-HIREL-1/Supplement 1.

2.2. Part Number (ordering information)

See TR-HIREL-1/Supplement 1 for checklist to be used for procurement.



2.3. Contact Data

2.3.1. Contact load and life ratings

See Table 1.

2.3.2. Contact resistance or voltage drop

See Table 2. Contact resistance measurements shall be made at approximately $\frac{1}{8}$ in. from the emergence of the lead from the seating plane of the relay.

2.3.3. Operate time

3.0 ms maximum.

2.3.4. Operate bounce time

When specified, see TR-HIREL-1/ Supplement 1
4.0 ms maximum.

2.3.5. Operate stabilization time

When specified, see TR-HIREL-1/ Supplement 1.
5.0 ms maximum.

Table 1 Contact Load and Life Ratings

Load level	Contact load <u>1/</u>	Contact life
Low level/Mechanical	10 – 50 μ A at 10 – 50 mV dc or peak ac	100,000 cycles rated life
		1,000,000 cycles unmonitored (Mechanical life)
Intermediate current	100 mA at 28 V dc	50,000 cycles
High level, resistive	2.0 A at 28 V dc	100,000 cycles
High level, inductive	750 mA at 28 V dc, with 0.20 H inductance	100,000 cycles
High level, lamp	160 mA at 28 V dc	100,000 cycles
Overload, resistive	4.0 A at 28 V dc	100 cycles
Notes: <u>1/</u> Relay case is grounded, unless otherwise specified.		

Table 2 Static Contact Resistance or Voltage Drop

Measurement		Maximum static contact resistance or voltage drop
Initial		0.050 Ω
Low level life	during life	33 Ω (1.65 mV dc monitoring level)
	after 100,000 or 1,000,000 cycle life	0.150 Ω
Intermediate current	during test	3 Ω (100 mV dc monitoring level)
	after 50,000 cycle test	0.100 Ω
High level life	during life	(1.4 Vdc monitoring level) voltage drop no more than 5 % of open circuit voltage
	after 100,000 cycle life	0.100 Ω
Overload	during life	not monitored
	after 100 cycle life	0.100 Ω

2.4. Electrical Data

2.4.1. Insulation resistance

Points of measurement are as specified in Table 3 (ref. only).

1,000 M Ω minimum at 100 Vdc except as follows:

500 M Ω minimum at 100 Vdc between coil and case at +125° C

500 M Ω minimum at 100 Vdc after 100 cycle overload

100,000 cycle high level life or 50,000 cycle intermediate current test.

2.4.2. Dielectric withstanding voltage

Points of application and test voltages are as specified in Table 3 for atmospheric pressure.

After 100 cycle overload, 100,000 cycle high level life, or 50,000 cycle intermediate current tests, the dielectric test voltage shall be 75 percent of initial values.

Table 3 Points of Application and Measurement and applied test voltage for Dielectric Withstanding Voltage

Points of Application / Measurement	Test Voltage (V rms)	Reset position	Set position
Between case and all contacts	950 - 1,050 (1,000 Vrms nominal)	✓	✓
Between case and coils	475 - 525 (500 Vrms nominal)	✓	
Between all contacts and coils	950 - 1,050 (1,000 Vrms nominal)	✓	
Between open contacts	475 - 525 (500 Vrms nominal)	✓	✓
Between coils	475 - 525 (500 Vrms nominal)	✓	
Between contact poles	950 - 1,050 (1,000 Vrms nominal)	✓	✓

2.4.3. **Coil data and operating characteristics**

See Table 4.

2.4.4. Timing (over the temperature range)

2.4.4.1. **Operate time**

3.0 ms maximum with rated coil voltage.

2.4.4.2. Bounce **time**

4.0 ms maximum with rated coil voltage.

Table 4 Coil Voltage, Coil Resistance, and Specified Latch/Reset Voltage

Coil Voltage (Vdc) <u>2/</u> <u>3/</u>		Room Ambient Temperature (+25 °C)			Over Temperature Range	
		Coil Resistance (Ω) ± 10%	Latch/Reset Voltage (Vdc) <u>4/</u>		Latch/Reset Voltage (Vdc) <u>4/</u>	
Rated	Max			Max	Min	Max
5.0	6.7	45	2.7	1.6	3.8	1.0
6.0	8.0	63	3.25	2.0	4.5	1.3
12.0	16.0	254	6.5	4.0	9.0	2.6
26.5	32.0	1000	13.0	8.0	18.0	5.2
48.0	64.0	3800	26.0	16.0	36.0	10.4

Notes:

1. Each relay possesses high level and low level capabilities. However, relays previously tested or used above 10 mA resistive at 6 Vdc maximum or peak ac open circuit are not recommended for subsequent use in low level applications.

2/ When latching relays are installed in equipment, the latch and reset coils should not be pulsed simultaneously. Coils should not be pulsed with less than the nominal coil voltage and the pulse width should be a minimum of three times the specified operate time of the relay. If these conditions are not followed, it is possible for the relay to be in the magnetically neutral position.

3/ The use of any coil voltage less than the rated coil voltage will affect the electrical and dynamic characteristics of the relay.

4/ Relay contacts shall transfer to the set/reset position at a voltage no greater than the maximum set/reset voltage.

2.5. Termination Variants

See Table 5.

Table 5 Termination Variants

2.5.1. Lead length shall be as follows:

Terminal Type Letter Designation	Terminal Type and Finish	Lead Length
G	Wire Lead - Gold Plated	.187 in. $\pm$.020 in.
Q	Wire Lead - Solder Coated <u>1/</u>	.187 in. $\pm$.020 in.

Note:

1/ Maximum lead diameter after solder coating is 0.034 inch (0.864 mm), except at the free end of the lead.

Maximum lead diameter at the free end of the lead after solder coating is 0.040 inch (1.016 mm).

2.6. Testing Selection ID Designator

The Testing Section ID Designator is an alphanumeric field that represents the combination of manufacturing and/or screening variants indicated below that are specified by the Orderer. Each combination of manufacturing and/or screening variants has a unique ID designator which is part of the Part Number (see 2.2). It allows the Orderer to select from specified manufacturing and/or screening variants based on program requirements.

2.6.1. Manufacturing Variants

Prior to encapsulation, when specified (see TR-HIREL-1/Supplement 1), the relays shall be subjected to the tests/inspections specified in Table 6.

2.6.2. Screening Variants

When specified (see TR-HIREL-1/Supplement 1), the relays shall be tested for the following attributes or shall be subjected to the tests/inspections of Table 7 as part of Quality Conformance Inspection.

Refer to see TR-HIREL-1/Supplement 1 for a further breakdown of Lot Acceptance Test Level 2 and Level 1.

Table 6 Manufacturing Variants

Test	Requirement in TR-HIREL-1	Test method in TR-HIREL-1
Small Particle Inspection	3.1	4.11.2

Table 7 Screening Variants

Test	Requirement in TR-HIREL-1	Test method in TR-HIREL-1
Solderability	3.6.2	4.11.4
Vibration (Random)	3.6.6	4.11.11.2
Particle Impact Noise Detection (PIND)	3.6.21	4.11.23
Operate Bounce Time	3.4.2.1	4.11.8.5.2
Contact Stabilization Time	3.4.2.2	4.11.8.5.3
Lot Acceptance Tests (Level 3)	3.1	4.10.3
Lot Acceptance Tests (Level 2)	3.1	4.10.3
Lot Acceptance Tests (Level 1)	3.1	4.10.3

2.7. Environmental Data.

The relays shall withstand the environmental tests as specified in Table 8.

Table 8 Environmental Tests

Test	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions
Solderability	3.6.2	4.11.4	
Thermal shock	3.6.4	4.11.9	
Shock (specified pulse)	3.6.5	4.11.10	Test condition C (100 G peak half-sine, 6 ms duration)
Vibration (sinusoidal)	3.6.6	4.11.11.1	Frequency range shall be 10 to 2500 Hz.
Vibration (random)	3.6.6	4.11.11.2	
Terminal strength	3.6.8	4.11.20	Pull test 3 ± 0.3 lb. Twist test not applicable.
Resistance to soldering heat	3.6.10	4.11.17	
Salt atmosphere (corrosion)	3.6.11	4.11.13	Performance requirement.
Resistance to solvents	3.6.16	4.11.16	

3. MARKING

Marking on the relay includes Teledyne Relays' Part Number (see 2.2), Lot Number, Circuit Diagram, Teledyne Relays' Name, Serial Number and Contact Current Rating. The circuit diagram as marked on the relay is the terminal view.

4. QUALITY ASSURANCE

Quality assurance provisions are as specified in TR-HIREL-1. The following details shall apply:

4.1. Final Production Tests

See Table 9.

4.2. Screening and Electrical Measurements

See Table 10.

4.3. Lot Acceptance Tests

When specified, see TR-HIREL-1/Supplement 1.

See Tables 11, 12 and 13.

4.4. Lot Failure

Lot failure during 100% Testing:

If the sum of the relays failed during Final Electrical Measurements at Room Temperature is greater than 10% (rounded upward to the nearest whole number), the lot shall be considered as failed.

Table 9 Final Production Tests 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
1. Verification of precap inspection, customer source inspection precap inspection, Marking/Serialization	Ref.: 3.6.18, 3.6.17	Ref. 4.11.1.1	2.2, 3.0
2. Verification of small particle inspection (when specified)	3.1	4.11.2	2.6.1
3. Room temperature electrical measurements <u>2/</u>			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time (when specified)	3.4.2.1	4.11.8.5.2	2.3.4
h) Operate contact stabilization time (when specified)	3.4.2.2	4.11.8.5.3	2.3.5
i) Neutral Screen	3.5.8	4.11.8.7	
4. Solderability (when specified) <u>3/</u>	3.6.2	4.11.4	2.6.2, 2.7
5. Seal	3.6.3	4.11.5	2.1.5
6. Visual inspection, external <u>4/</u>	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
Notes: <u>1/</u> 100% inspection applies, unless otherwise noted. For 100 % inspection, discard all failed relays. <u>2/</u> Test sequence is optional. <u>3/</u> Perform on 2 relays from each lot. Failed relays resulting from Room Temperature Electrical Measurements may be used for test. <u>4/</u> Physical dimensions and weight shall be measured on two sample units per lot.			

Table 10 Screening and Electrical Measurements 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
1. Vibration, sinusoidal	3.6.6	4.11.11.1	2.7
2. Vibration, random (when specified)	3.6.6	4.11.11.2	2.6.2, 2.7
3. Particle Impact Noise Detection (PIND) Test (when specified)	3.6.21	4.11.23	2.6.2
4. Internal moisture	3.6.1	4.11.3.1	
5. Thermal cycle/Miss test	3.6.19	4.11.3.2	
First four hot/cold cycles:			
a) Coil continuity		4.11.3.2.1	
Fifth hot/cold cycle:			
b) High temperature soak		4.11.3.2.1	
c) High temperature electrical measurements <u>2/</u>		4.11.3.2.1	
i. Insulation resistance	3.5.1	4.11.6	2.4.1
ii. Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
iii. Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
iv. Operate time	3.5.6	4.11.8.4	2.4.4
v. Operate contact bounce time	3.4.2.1	4.11.8.5.2	2.4.4
d) High temperature Miss test	3.6.1	4.11.3.2.1, 4.11.3.2.2	
e) Low temperature soak		4.11.3.2.1	
f) Low temperature electrical measurements <u>2/</u>		4.11.3.2.1	
i. Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
ii. Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
iii. Operate time	3.5.6	4.11.8.4	2.4.4
iv. Operate contact bounce time	3.4.2.1	4.11.8.5.2	2.4.4

See notes at end of Table.

Table 10 Screening and Electrical Measurements (cont'd) 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
6. Thermal cycle/Miss test (cont'd)			
g) Low temperature Miss test	3.6.1	4.11.3.2.1, 4.11.3.2.2	
h) Stabilize at room ambient temperature		4.11.3.2.1	
i) Room temperature Miss test	3.6.1	4.11.3.2.1, 4.11.3.2.2	
7. Room temperature electrical measurements <u>2/</u>			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time (when specified)	3.4.2.1	4.11.8.5.2	2.3.4
h) Operate contact stabilization time (when specified)	3.4.2.2	4.11.8.5.3	2.3.5
i) Neutral Screen	3.5.8	4.11.8.7	
8. Seal	3.6.3	4.11.5	2.1.5
9. Radiographic inspection	3.6.20	4.11.22	
10. Visual inspection, external	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
11. Check for lot failure			4.4
Notes: <u>1/</u> Inspection sample 100 % unless otherwise noted; discard all failed relays. <u>2/</u> Test sequence is optional.			

Table 11 Lot Acceptance Test 3 1/

Inspection	Requirement in TR-HIREL-1	Test Method in TR-HIREL-1	Details and exceptions in this spec
1. Room temperature electrical measurements <u>2/</u>			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time (when specified)	3.4.2.1	4.11.8.5.2	2.3.4
h) Operate contact stabilization time (when specified)	3.4.2.2	4.11.8.5.3	2.3.5
i) Neutral Screen	3.5.8	4.11.8.7	
2. Seal	3.6.3	4.11.5	2.1.5
3. Visual inspection, external	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
4. Check for lot failure		4.8	
Notes: <u>1/</u> See TR-HIREL-1, Paragraph 4.10.3 and 2.6.2 herein. <u>2/</u> Test sequence is optional.			

Table 12 Lot Acceptance Test 2 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
Group I			
1. Life <u>1</u> /	3.6.13	4.11.19	2.3.1, 2.6.2
2. Room temperature electrical measurements <u>2</u> /			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time (when specified)	3.4.2.1	4.11.8.5.2	2.3.4
h) Operate contact stabilization time (when specified)	3.4.2.2	4.11.8.5.3	2.3.5
i) Neutral Screen	3.5.8	4.11.8.7	
3. Visual inspection, external <u>3</u> /	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
4. Seal	3.6.3	4.11.5	2.1.5
5. Check for lot failure		4.8	

See notes at end of Table.

Table 12 Lot Acceptance Test 2 (cont'd) 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
Group II			
1. Intermediate current <u>1/</u>	3.6.14	4.11.14	2.3.1, 2.6.2
2. Room temperature electrical measurements <u>2/</u>			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time	3.4.2.1	4.11.8.5.2	2.3.4
h) Neutral Screen	3.5.8	4.11.8.7	
3. Visual Inspection, external <u>3/</u>	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
4. Check for lot failure		4.8	

See notes at end of Table.

Table 12 Lot Acceptance Test 2 (cont'd) 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
Group III			
1. Overload (highest dc resistive load) <u>1/</u>	3.6.12	4.11.18	2.3.1, 2.6.2
2. Room temperature electrical measurements <u>2/</u>			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time	3.4.2.1	4.11.8.5.2	2.3.4
h) Neutral Screen	3.5.8	4.11.8.7	
3. Visual Inspection, external <u>3/</u>	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
4. Check for lot failure		4.8	

See notes at end of Table.

Table 12 Lot Acceptance Test 2 (cont'd) 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
Group IV			
1. Mechanical life <u>1/</u>	3.6.15	4.11.15	2.3.1, 2.6.2
2. Room temperature electrical measurements <u>2/</u>			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time (when specified)	3.4.2.1	4.11.8.5.2	2.3.4
h) Operate contact stabilization time (when specified)	3.4.2.2	4.11.8.5.3	2.3.5
i) Neutral Screen	3.5.8	4.11.8.7	
3. Visual Inspection, external <u>3/</u>	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
4. Check for lot failure		4.8	
Notes: 1/ See TR-HIREL-1, Paragraph 4.10.3 and 2.6.2 herein. <u>2/</u> Test sequence is optional. <u>3/</u> The header glass criteria is not applicable. 4. Post-life operating characteristics, operate time, and contact dynamic characteristics, as applicable, are allowed to have a 10% variance from the initial allowable values.			

Table 13 Lot Acceptance Test 1 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
Group I			
1. Thermal shock	3.6.4	4.11.9	2.6.2
2. Shock (specified pulse)	3.6.5	4.11.10	2.7
3. Vibration (sinusoidal and random)	3.6.6	4.11.11	2.7
4. Terminal strength	3.6.8	4.11.20	2.7
5. Room temperature electrical measurements <u>2</u> /			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time (when specified)	3.4.2.1	4.11.8.5.2	2.3.4
h) Operate contact stabilization time (when specified)	3.4.2.2	4.11.8.5.3	2.3.5
i) Neutral Screen	3.5.8	4.11.8.7	
6. Seal	3.6.3	4.11.5	2.1.5
7. Visual inspection, external <u>3</u> /	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
8. Check for lot failure		4.8	

See notes at end of Table.

Table 13 Lot Acceptance Test 1 (cont'd) 1/

Inspection	Requirement in TR-HIREL-1	Test method in TR-HIREL-1	Details and exceptions in this spec
Group II			
1. Resistance to solvents	3.6.16	4.11.16	2.7
2. Resistance to soldering heat	3.6.10	4.11.17	2.7
3. Room temperature electrical measurements <u>2/</u>			
a) Coil resistance	3.5.4	4.11.8.2	2.4.3
b) Insulation resistance	3.5.1	4.11.6	2.4.1
c) Dielectric withstanding voltage (atmospheric pressure)	3.5.2	4.11.7	2.4.2
d) Static contact resistance	3.4.1.1	4.11.8.5.1	2.3.2
e) Set/reset voltage	3.5.3.2	4.11.8.1.2	2.4.3
f) Operate time	3.5.6	4.11.8.4	2.3.3
g) Operate contact bounce time (when specified)	3.4.2.1	4.11.8.5.2	2.3.4
h) Operate contact stabilization time (when specified)	3.4.2.2	4.11.8.5.3	2.3.5
i) Neutral Screen	3.5.8	4.11.8.7	
4. Visual inspection, external <u>3/</u>	3.6.18	4.11.1.2	2.1.3, 2.1.4, 2.1.6, 2.2
5. Check for lot failure		4.8	
Notes: <u>1/</u> See TR-HIREL-1, Paragraph 4.10.3 and 2.6.2 herein. <u>2/</u> Test sequence is optional. <u>3/</u> The header glass criteria is not applicable. 4. Post-life operating characteristics, operate time, and contact dynamic characteristics, as applicable, are allowed to have a 10% variance from the initial allowable values.			

5. GENERAL NOTES.

When used in applications at high level loads, surge current protection is recommended.

Appendix A Document Change History

Issue or Amendment No.	Date of Issue	Reference and Change Description	Change Notice No.
Issue 1	20 Mar 2006	Official Release	28426
Issue 2	20 Feb 2007	Revise contact stabilization time test limit	28695
Issue 3	8 Aug 2007	Delete Vibration Miss Test Option	28799