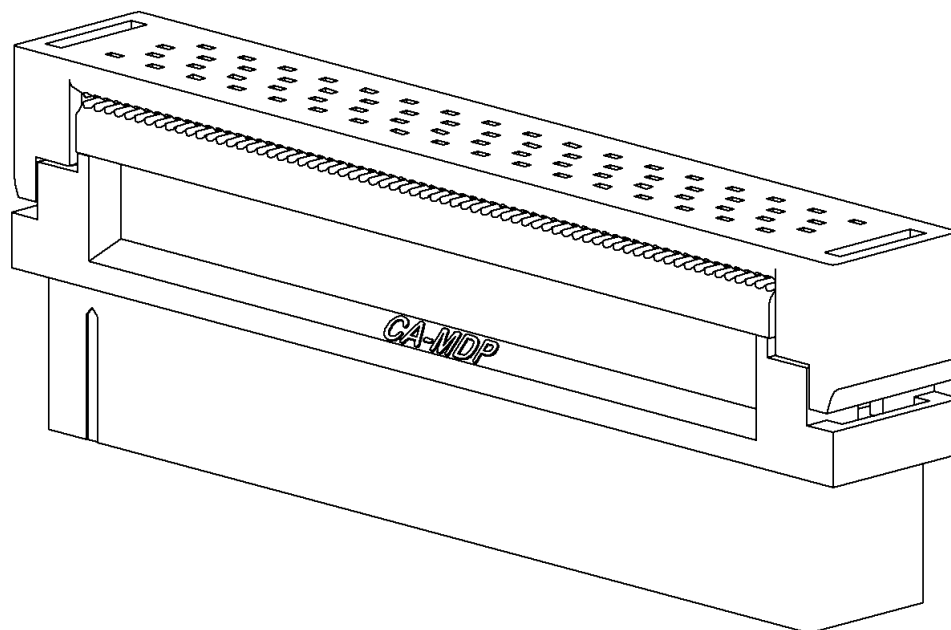


SPECIFICATION AND PERFORMANCE OF MDP CONNECTOR SERIES



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NOTE: *Unless otherwise noted in this specification, all units of measure are metric.
Decimal dimensions are (reference)*

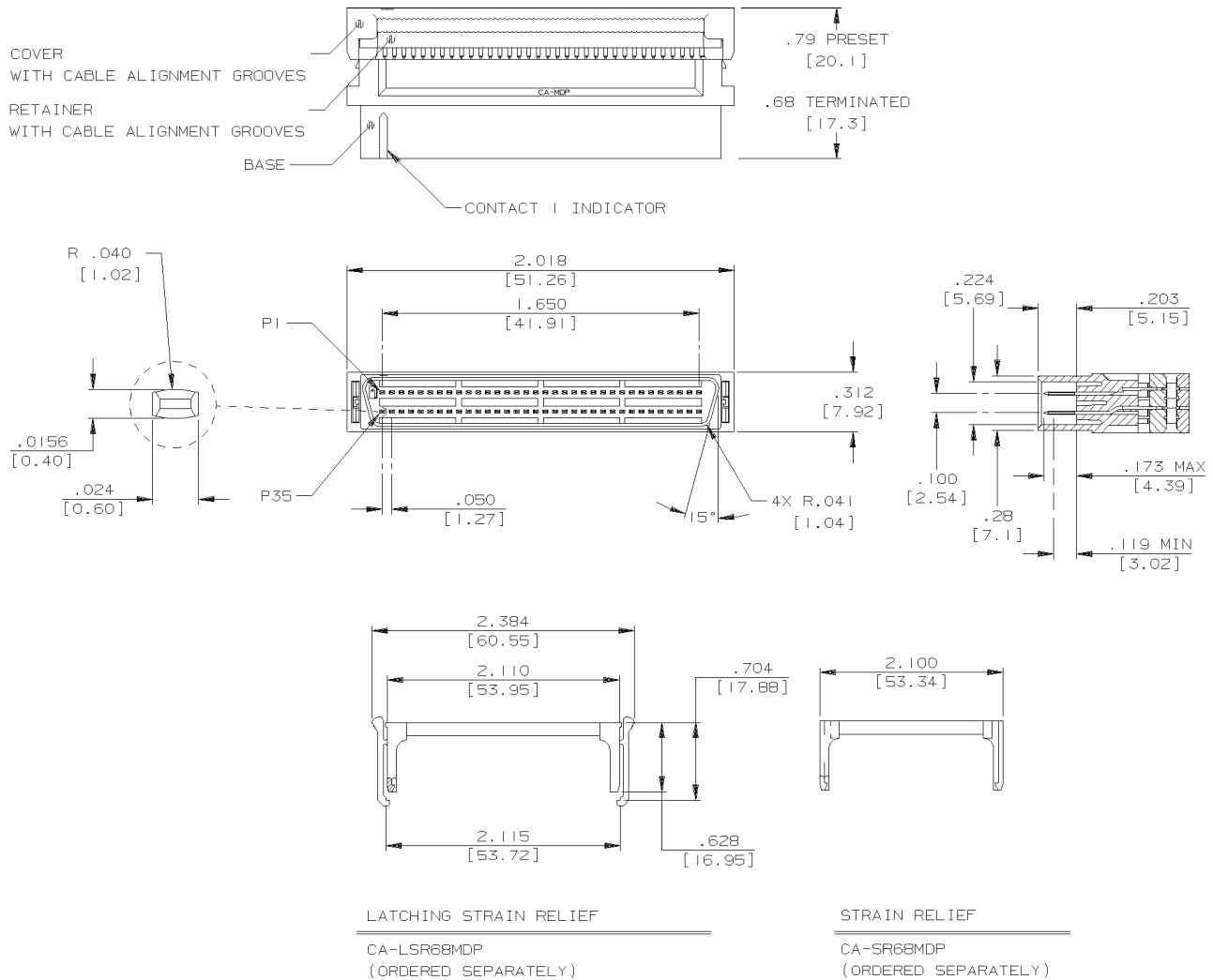
1.0 SCOPE

- 1.1 This specification establishes the performance, test and quality requirements for the CA SCSI Interface MDP series of 1.27 X 2.54 mating grid, insulation displacement plug connectors using 30AWG solid and stranded wire. This unshielded connector is compatible to SCSI-2, SCSI-3 and EIA RS-32 standards and terminates with 0.635 centerline flat unshielded cable and single conductor cable having various insulations such as PVC, FEP, TPE and Polypropylene. See Fig.1 CA MDP Connector Assembly.
- 1.2 Should any difference occur between this specification and any document specified in Section 2, this specification shall prevail. In addition, if any difference occurs between this specification and the individual part drawings, then the part drawings shall prevail.

2.0 APPLICABLE DOCUMENTS

Reference documents listed below shall be the latest revision unless otherwise specified. Should a conflict occur between this specification and any of the listed documents then this specification shall prevail.

EIA-364	Electrical Connector Test Procedures Including Environmental Classifications.
620368	CA Drawing - MDP Connector Assembly
620471	CA Drawing – MDP Connector Assembly - RoHS Compliant
100196	CA Specification - Connector SCSI Interface NFDS & NFDP Series



CA - 68 MDP-X

NUMBER OF POSITIONS _____

INSULATION DISPLACEMENT D-TYPE PLUG _____

CONTACT _____

- F = CONTACT AREA : .000030 [.00076] GOLD MIN.
- IDC AREA : .000150 [.00381] TIN
- UNDERPLATE : .000075 [.00191] NICKEL
- C = CONTACT AREA : .000015 [.00381] GOLD MIN.
- IDC AREA : .000150 [.00381] TIN
- UNDERPLATE : .000075 [.00191] NICKEL
- A = CONTACT AREA : GOLD FLASH
- IDC AREA : .000150 [.00381] TIN
- UNDERPLATE : .000075 [.00191] NICKEL

Figure 1 – MDP Connector and Ordering Nomenclature

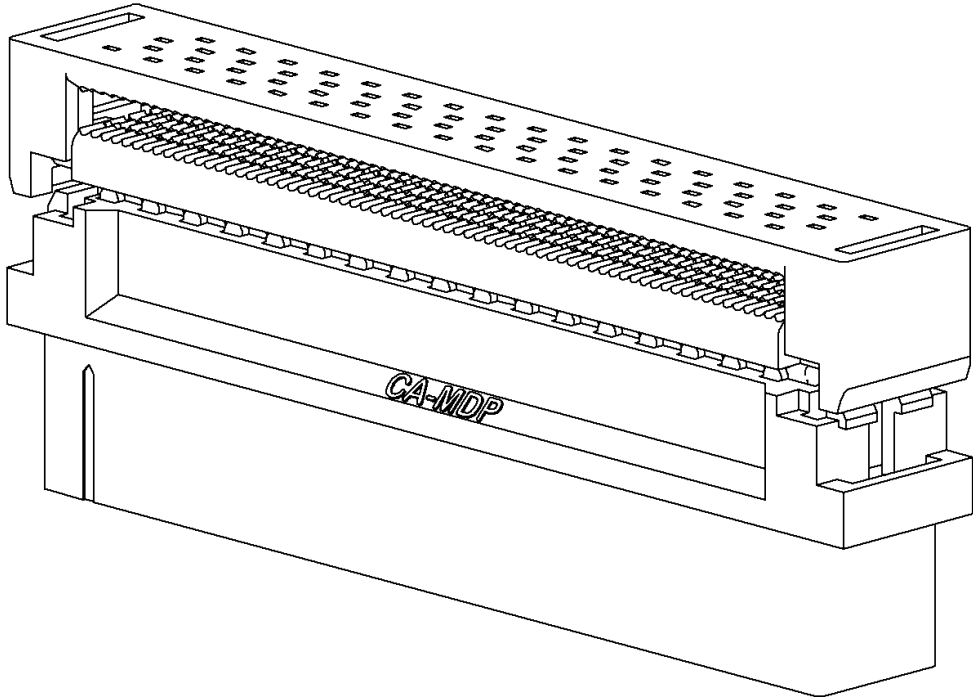


Figure 2 – MDP Connector in preset condition

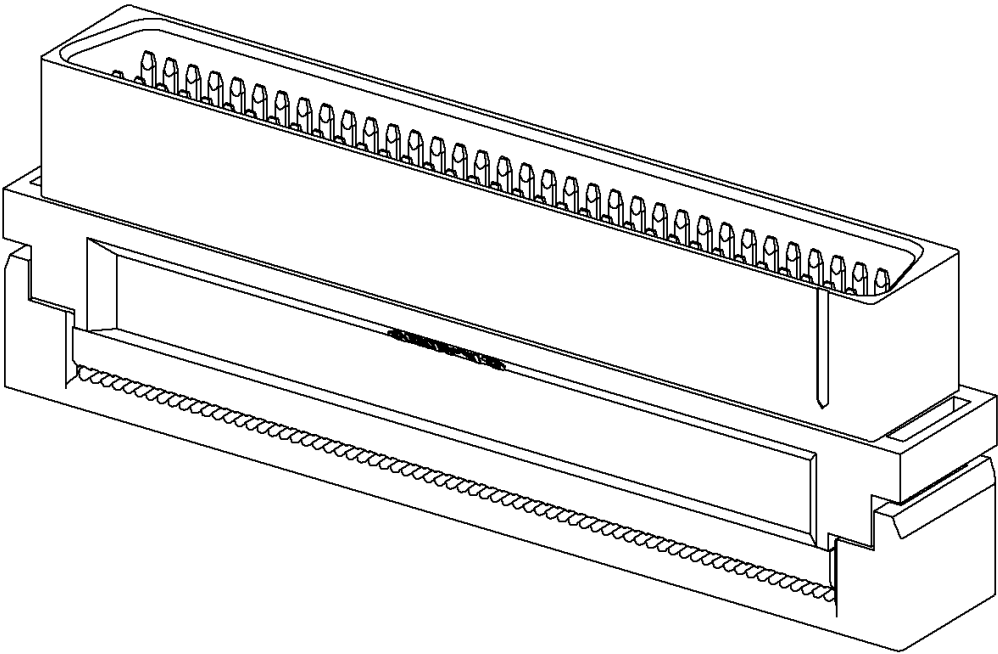


Figure 3 – MDP Connector in terminated condition
(Inverted to show pins)

3.0 APPLICATION FEATURES

3.1 MATERIALS

Housing - Base, Retainer and Cover - 30% Glass Filled Polyester (PBT), UL94V-0, color black.

Contact - Phosphor Bronze:

F Plating Specification = 0.76 μ m (.000030) gold in contact area, 3.81 μ m (.000150) Tin in IDT area, all over 1.91 μ m (.000075) nickel.

C Plating Specification = 0.38 μ m (.000015) gold in contact area, 3.81 μ m (.000150) tin in IDT area, all over 1.91 μ m (.000075) nickel.

A Plating Specification = gold flash in contact area, 3.81 μ m (.000150) tin in IDT area, all over 1.91 μ m (.000075) nickel.

3.2 IDT CABLE

Connector will terminate 30AWG solid and stranded 0.635mm (.025") centerline flat unshielded cable and single conductor cable having FEP, TPE or PVC insulation.

3.3 RATINGS

Voltage - 30 VAC. Rating is based on testing approvals by UL, C-UL and CSA Wiring Harness Component Programs.

Current - Signal contacts - 0.5 Amp per contact unless limited by the cable being used.

Temperature - -55°C to 105°C unless limited by the cable being used.

3.4 RECOGNITION AND CERTIFICATION

UL: Product Category ECBT2
Connectors For Use In Data, Signal, Control and Power Applications
File No. E95981

C-UL: Product Category ECBT8
Connectors For Use In Data, Signal, Control and Power Applications
Certified For Canada
File No. E95981

4.0 CHARACTERISTICS

Unless specified in the test sequences show in Sect. 5, all tests shall be performed at current atmospheric conditions.

4.1 ENVIRONMENTAL

4.1.1 Thermal Shock

Condition: EIA 364-32, subject mated connectors to 5 cycles between -55°C and 105°C.

There shall be no physical damage and shall meet requirements of subsequent tests.

4.1.2 Humidity-temperature Cycling

Condition: EIA364-31. Method III, Test Condition A (96 hours), subject mated connectors to 10 cycles between 25°C and 65°C at 95% relative humidity. Non-energized, omit 7a and 7b.

There shall be no physical damage and shall meet requirements of subsequent tests.

4.1.3 Temperature Life

Condition: EIA364-17, Test Condition 4, subject mated connectors to 105°C for 250 hours.

There shall be no physical damage and shall meet requirements of subsequent tests.

4.1.4 Mixed Flowing Gas

Condition: EIA364-65, Environmental Class II, for 14 days, mated

There shall be no physical damage and shall meet requirements of subsequent tests.

4.2 ELECTRICAL

4.2.1 Withstanding Voltage

Condition: EIA364-20, Method C.

Between adjacent contacts of mated connectors: 500Vrms at sea level applied for 1 minute.

4.2.2 Low Level Contact Resistance

Conditions: EIA364-23, except 100mA maximum test current

and 50 mV maximum open circuit voltage. Initial Low Level Contact Resistance shall not exceed 35 m Ω . Delta LLCR shall not exceed 15m Ω .

4.2.3 Insulation Resistance

Conditions: EIA364-21, test voltage 500Vdc.

Between adjacent contacts of mated connectors:
1 Gigohms minimum.

4.3 MECHANICAL

4.3.1 Durability Cycling

Conditions: EIA364-09, mate and unmate connectors for 500 cycles at a rate of 600 cycles per hour.

There shall be no physical damage and shall meet requirements of subsequent tests.

4.3.2 Mating and Unmating Force

Conditions: EIA364-13, at a rate of 12.7mm/minute

Force to mate: 100 grams maximum per contact.

Force to unmate: 35 grams minimum per contact.

4.3.3 Vibration

Conditions: EIA364-28, Cond.II. Subject mated connectors to 10 Hz to 500 Hz, 10g's peak for 1 hour in each of 3 mutually perpendicular planes.

There shall be no discontinuities of 1 μ sec. duration or longer.

4.3.4 Physical Shock

Condition: EIA364-27, test Condition A, subject mated connectors to 30 g's peak acceleration, half sine wave pulses of 11 milliseconds, 3 shocks applied along 3 mutually perpendicular planes, total 18 shocks.

There shall be no discontinuities of 1 μ sec. duration or longer.

4.3.5 Cable Flexing

Condition: EIA364-41, test Condition II, Method I, for 100 cycles through an included angle of 90°. A load of 1Kg is attached to the loose end of the cable which is 200mm to 300mm long.

5.0 TEST SCHEDULE

5.1 GENERAL

This test schedule shows the tests and the order in which they will be carried out and the requirements to be met in each test.

Unless otherwise specified, mated sets of connectors (MDP/NFDS) shall be tested. A mated set of connectors is called a “specimen”. After completion of Group 1 (Preliminary Inspection) the specimens will be equally divided and assigned to each of the four remaining Test Groups. Care shall be taken to insure that the mated specimen remain together during the complete test sequence, i.e. when unmating is necessary for a certain test, the same connectors shall be re-mated for the subsequent testing within that Group.

Before testing commences, the connectors shall be stored for at least 24 hours in the non-inserted state under normal climatic conditions for testing.

In the following test sequence tables, where an EIA test is specified without a letter suffix, the latest approved version shall be used.

5.2 TEST SAMPLES

5.2.1 Test Sample Preparation

PLUG & SOCKET CONNECTORS: Samples of the MDP Plug and NFDS Socket are removed at random from CA Final Inspection (current production) and are prepared according to the requirements and severity of the tests to be conducted as specified in ANSI/EIA 364 or other referenced documents.

5.3 TEST SEQUENCES & PERFORMANCE

5.3.1 TEST GROUP 1 - General Examination

Representative specimens are subjected to the following Visual Inspection and Examination to determine that the connectors are acceptable to be included in the following six (6) Test Groups.

Minimum 25 specimens - Permitted defects zero

Test Phase	Test			Measurements to be Performed		Comments/ Requirements
	Title	EIA 364 Test No.	Severity or condition of test	Title	EIA 364 Test No.	
1.1	General Examination		Unmated Connectors	Visual Inspection	18	There shall be NO defects that would impair normal operation
				Examination of dimensions and plating thickness	23	Dimensions shall comply with this document

Fig. 4 - Test and Performance Group 1

5.3.2 TEST GROUP 2 - Mating Force, Durability, Vibration, Shock, and Unmating Force.

Minimum 5 specimens - Permitted defects zero

Test Seq.	Test		Requirements
	Title	EIA 364	
2.1	Mating Force	13	100g max per contact Ref. 68 pos. = 6.8Kg max. 80 pos. = 8.0Kg max.
2.2	Initial Low Level Contact Resistance (LLCR)	23	50mV max open circuit at 100mA max. <35m \square
2.3	Durability	09	Mate & unmate specimen 500 cy at a rate of 600 cycles/hour. There shall be no physical damage
2.4	Vibration	28	No discontinuities of 1 μ s or longer duration. EIA364-46
2.5	Shock	27	No discontinuities of 1 μ s or longer duration. EIA364-46
2.6	Change in Low Level Contact Resistance (LLCR)	23	Same as 2.2 Delta LLCR shall not exceed 15m \square
2.7	Unmating Force	13	35g min per contact Ref. 68 pos. = 2.38 Kg min 80 pos. = 2.80Kg min.
2.8	General Examination	18	Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation.

Fig. 5 - Test and Performance Group 2

5.3.3 TEST GROUP 3 - Temperature Life and Vibration.

Minimum 5 specimens - Permitted defects zero

Test Seq.	Test		Requirements
	Title	EIA 364	
3.1	Initial Low Level Contact Resistance (LLCR)	23	50mV max open circuit at 100mA max. <35m Ω
3.2	Temperature Life	17	Condition 4, 105°C for 1000hr There shall be no physical damage.
3.3	Change in Low Level Contact Resistance (LLCR)	23	Same as 3.1 Delta LLCR shall not exceed 15m Ω
3.4	Vibration	28	No discontinuities of 1 μ s or longer duration. EIA364-46
3.5	Change in Low Level Contact Resistance (LLCR)	23	Same as 3.1 Delta LLCR shall not exceed 15m Ω
3.6	General Examination	18	Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation.

Fig. 6 - Test and Performance Group 3

5.3.4 TEST GROUP 4 - Thermal Shock and Humidity- Temperature cycling.

Minimum 5 specimens - Permitted defects zero

Test Seq.	Test		Requirements
	Title	EIA 364	
4.1	Insulation Resistance	21	Test Voltage 500Vdc. 1G \square min.
4.2	Dielectric Withstanding Voltage	20	Test voltage 500Vrms for 1 minute
4.3	Initial Low Level Contact Resistance (LLCR)	23	50mV max open circuit at 100mA max. <35m \square
4.4	Thermal Shock	32	5 cycles between -55°C and 105°C. There shall be no physical damage.
4.5	Change in Low Level Contact Resistance (LLCR)	23	Same as 4.3 Delta LLCR shall not exceed 15m \square
4.6	Humidity-temp. Cycling	31	10 cycles between 25°C & 65°C at 95%rh for 240hr
4.7	Change in Low Level Contact Resistance (LLCR)	23	Same as 4.3 Delta LLCR shall not exceed 15m \square
4.8	Insulation Resistance	21	Test Voltage 500Vdc. 1G \square min.
4.9	Dielectric Withstanding Voltage	20	Test voltage 500Vrms for 1 minute
4.10	General Examination	18	Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation.

Fig. 7 - Test and Performance Group 4

5.3.5 TEST GROUP 5 - Cable Flexing.

Minimum 5 specimens - Permitted defects zero

Test Seq.	Test		Requirements
	Title	EIA 364	
5.1	Cable Flexing	41	Condition II, Method I, for 100 cycles through an included angle of 90°. A load of 1Kg is attached to the free end of a cable which is 200mm to 300mm long. No discontinuities of 1µs or longer duration. EIA364-46
5.2	General Examination	18	Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation.

Fig. 8 - Test and Performance Group 5

5.3.6 TEST GROUP 6 - Mixed Flowing Gas.

Minimum 5 specimens - Permitted defects zero

Test Seq.	Test		Requirements
	Title	EIA 364	
6.1	Initial Low Level Contact Resistance (LLCR)	23	50mV max open circuit at 100mA max. <35mΩ
6.2	Durability Pre conditioning	09	25 cycles at rate of 600 cycles per hour. There shall be no physical damage.
6.3	Mixed Flowing Gas	65	Class II for 14 days. There shall be no physical damage.
6.4	Change in Low Level Contact Resistance (LLCR)	23	Same as 6.1 Delta LLCR shall not exceed 15mΩ
6.5	General Examination	18	Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation.

Fig. 9 - Test and Performance Group 6

6.0 QUALITY PROVISIONS

6.1 ACCEPTANCE

Acceptance of the MDP Series of connectors is based on meeting the Performance Criteria as detailed in Section 5.3 of this specification.

6.2 RE-QUALIFICATION

Re-qualification will be a requirement when there are significant changes to form, fit or function, materials, or changes to production process that would effect the performance requirements of these products.

6.3 RE-TESTING

Connectors stored for a period of more than 36 months after the release of the lot shall be tested prior to delivery according to Test & Performance Group 3 requirements.

6.4 INSPECTION DATA

Inspection and test data shall be recorded, evaluated, and maintained as evidence of performance to these provisions.

Initiated By: J. McAllister	Date: 9/01/97	Engineering Approval: A. Jochen	Date: 9/01/97	Quality Approval: Vicky Vasquez	Date: 9/01/97
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REV.	DESCRIPTION	DATE	INITIALS
A	See D.O. # 2891	9/01/97	J..McA.
B	See D.O. # 3031	6/25/98	J..McA.
C	See D.O. # 3140	8/20/98	J..McA.
D	See D.O. # 4893	7/10/02	C.C.L
E	See D.O. # 5801	6/17/05	L.F.