

# ***GP:50***

## **INSTALLATION, CALIBRATION & TROUBLESHOOTING MANUAL**

**Model 7500 Transducer**



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**Record of Changes**

<b>REV</b>	<b>DESCRIPTION</b>	<b>DATE</b>	<b>BY</b>
<b>A</b>	<b>Revised connector option designation</b>	<b>8/17/09</b>	<b>MM</b>
<b>B</b>	<b>Revised Outline Drawing (Sheet 9) Deleted Sheet 10</b>	<b>10/21/10</b>	<b>RTG</b>

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## **Disclaimer**

No representations or warranties are made with respect to the contents of this Installation Guide. GP:50 reserves the right to revise this guide and to make changes periodically to the content hereof, without obligation to notify any persons of such revisions.

## **Warning**

Pressurized vessels as such and associated equipment are potentially dangerous. The product described in the guide should be operated only by personnel trained in the procedures that will assure safety to themselves, to others, to the equipment, and to the product. Before performing any maintenance, turn the power off.

## **Introduction**

The Model 7500 pressure transducer is designed for pressure measurement and easy recalibration. The all stainless steel parts construction and the hermetically sealed enclosure ensure that the product meets all customer specifications. The pressure transducers are designed and manufactured in accordance with MIL-Standards and GP: 50 QA procedures.

## **Unpacking and Inspection**

The Model 7500 pressure transducer was thoroughly tested and inspected and carefully packed. Upon receipt of the shipment thoroughly inspect the transducer.

If you see any visible signs of obvious shipping damage, notify the Freight Company immediately.

## **Mechanical Installation**

**Installation Note-** Transducers are precision instruments and should be given the same care as any other precision instrument during installation and operation.

**Handling-** the transducer has a protective cap covering the pressure ports and electrical connector of the transducer. This ensures that the surface is protected from nicks and scratches. It is recommended that the caps remain in place during storage and handling, in order to prevent damage to the diaphragm and connector.

**Installation-** Remove the protective plugs from the pressure port before installation. Thread the pressure port into a plumbing system. Use proper wrench size installation. Installation torque is 120inlb for port options FA,FD. For port option FJ use 45ft-lbs torque with compatible thread sealing compound or tape.

In additional, mounting brackets can be employed for extra support if required by application. See Outline drawing for recommended location of the brackets.

Included in the package is a O-ring for option FD connector so either the metal to metal joint or o-ring joint configuration can be used to seal the transducer to the manifold.

## Electrical Installation

USE ESD PRECAUTIONS DURING CONNECTION TO THE TRANSDUCER.

Ensure power is off prior to connection or disconnection from the transducer or your instrumentation system.

The electrical connection for the model 7500 is either a 6 pin bayonet style, or 6 pin military grade threaded style connector. Below is a list of standard non-environmental plug part numbers available at the factory, please contact factory for other mating plug needs:

Option CA use P/N: PT06E-10-6S

Option CI use P/N: D38999/26WB98SN\*

Option DB use P/N: D38999/26WA35SN\*

- Plug only, backshell must be purchased separately.

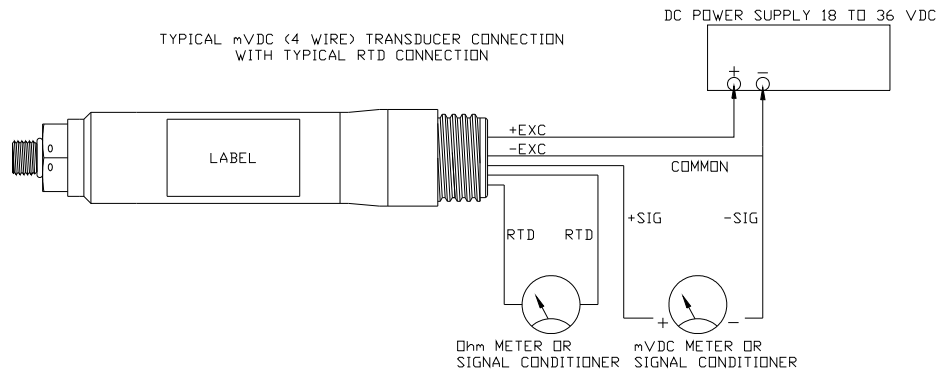
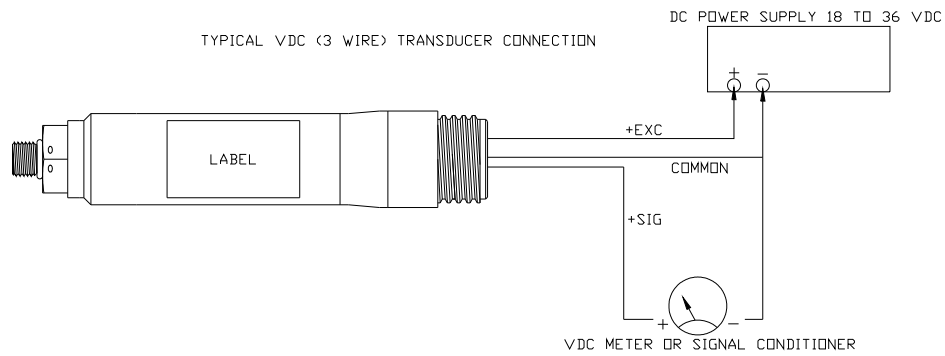
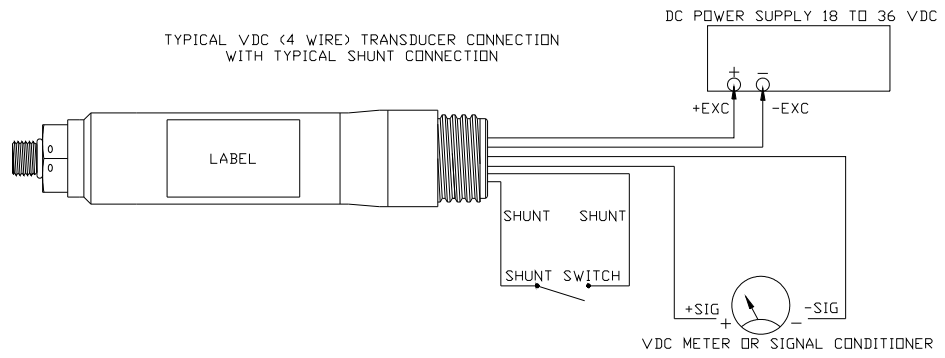
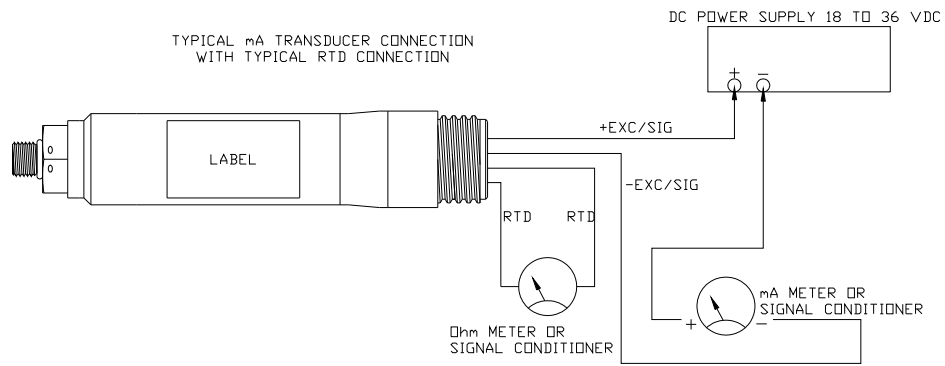
Output of the transducer is as follows:

Option 1	0 to 3 mV/VDC
Option 2	0 to 5 VDC (4 wire, input/output electrically non-isolated)
Option 3	4 to 20 mA (2 wire)
Option 4	0 to 5 VDC (4 wire, input/output electrically isolated)
Option 5	0 to 10 VDC (4 wire, input/output electrically non-isolated)
Option 6	0 to 10 VDC (4 wire, input/output electrically isolated)
Option 7	0 to 2 mV/VDC
Option 8	0 to 10 mV/VDC
Option 9	0 to 5 VDC (3 wire, input/output electrically non-isolated)
Option 10	0 to 10 VDC (3 wire, input/output electrically non-isolated)

For proper wiring see wiring diagram below.

### **Wiring**

Reference attached Model 7500 outline drawing for specific model pin-outs.



Reference attached Model 7500 outline drawing for specific model pin-outs.

**Please Note:** Electronics have been designed so that momentary incorrect wiring of the power leads on the transducer will not damage the circuitry of the transducer.

Each transducer has been supplied with a calibration card for reference output data at different pressures and compensated temperatures also identifying the non-repeatability, hysteresis, non-linearity static accuracy and total transducer errors. Additionally, the card will identify optional RTD output resistance at 70°F or 80% / 100% optional shunt output.

## Troubleshooting

Symptom/Problem	Action
No Output	<ul style="list-style-type: none"> <li>• Verify power supply voltage meets transducer requirements</li> <li>• Check wiring connections</li> <li>• Verify pressure is being applied</li> <li>• Verify output load is not shorted</li> </ul>
Erratic/Intermittent output or Zero drift	<ul style="list-style-type: none"> <li>• Verify pressure applied is constant</li> <li>• Verify power supply remains within specifications</li> <li>• Inspect electrical connections for discontinuity or damage.</li> <li>• Verify output with a multi-meter</li> <li>• Check insulation resistance between amplifier and transducer case.</li> </ul>
Loose or Leaking process connection	<ul style="list-style-type: none"> <li>• Inspect Weld joint</li> <li>• Re-torque process connection</li> <li>• Replace Teflon o-ring on face seal</li> </ul>

## Warranty

### GP:50 Warranty Statement

GP:50 warrants its products to the original customer/purchaser against defects in material and workmanship for a period of one (1) year from the date of sale by GP:50, as shown in its shipping documents, subject to the following terms and conditions:

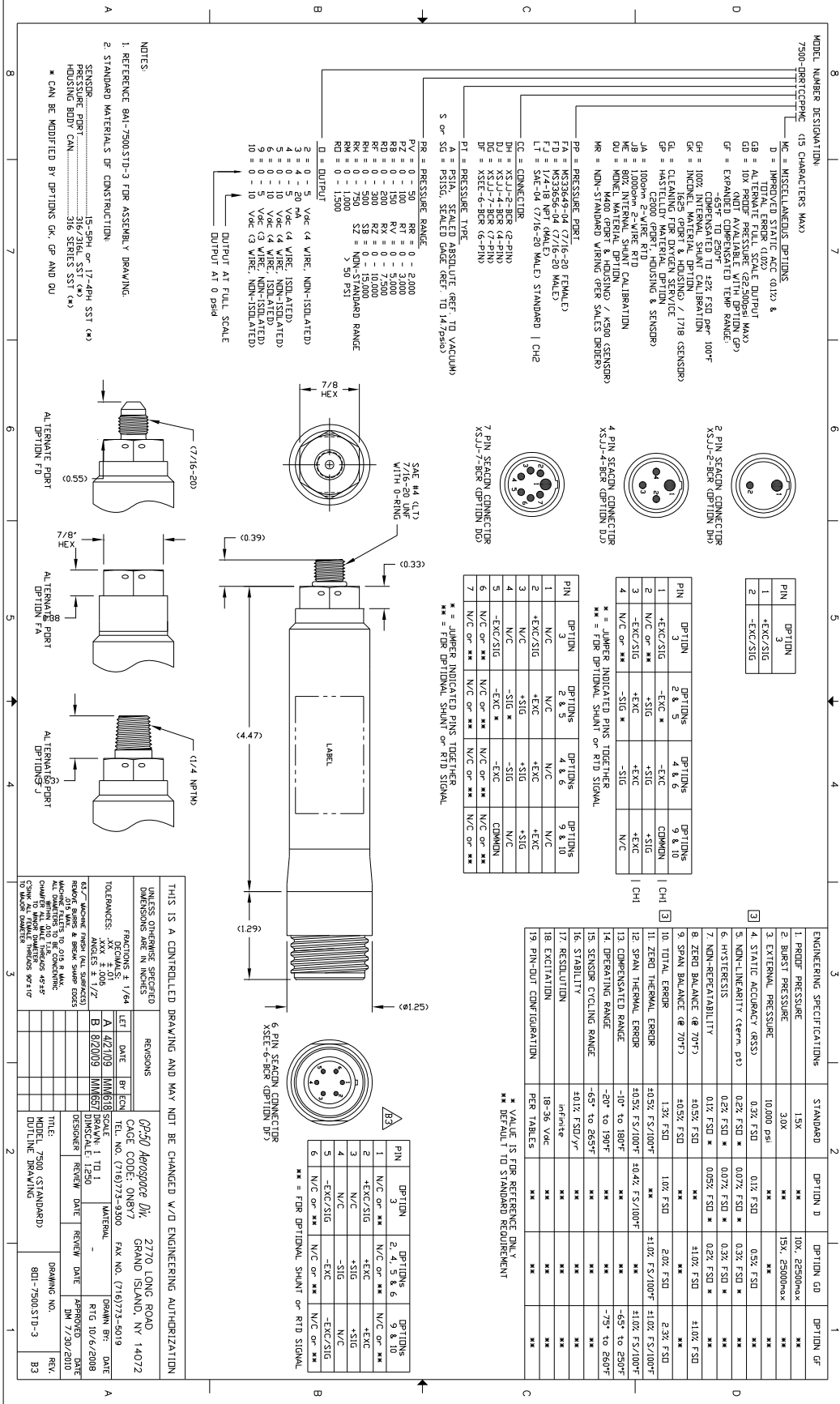
Without charge GP:50 will repair or replace products found to be defective in materials or workmanship within the warranty period provided that:

1. The product has not been subjected to abuse, neglect, accident, incorrect wiring (not provided by GP:50), improper installation or servicing, or use in violation of instructions furnished by GP:50.
2. Electronic access screws have not been removed. This will void calibration and warranty
3. As to any prior defect in materials or workmanship covered by this warranty, the product has not been repaired or altered by anyone except GP:50 or its authorized service agencies.
4. The serial number has not been removed, defaced or otherwise changed.
5. Examination discloses, in the judgement of GP:50, a defect in materials or workmanship which developed under normal installation, use and service; and
6. GP:50 is notified in advance of, and approves the return; and the products are returned to GP:50 transportation prepaid.

THIS WARRANTY IS THE ONLY WARRANTY AND IS IN LIEU OF ANY OTHER WARRANTY EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS. NO REPRESENTATIVE OR PERSONS ARE AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR GP:50 ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS. GP:50 DOES NOT ASSUME THE COSTS OF REMOVAL AND/OR INSTALLATION OF THE PRODUCT OR ANY OTHER WORKMANSHIP, NOR WILL GP:50 BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR INSTALLATION OF ITS PRODUCT.

Contact our website <http://www.gp50.com> for a copy of our rework/repair policy or call our Aerospace dept.

THIRD PARTY AGENCY APPROVAL CODE: N/A



MODEL NUMBER DESIGNATION: 7500-DBR1C/CPMC (15 CHARACTERS MAX)

MC = MISCELLANEOUS OPTIONS  
 D = INTERNAL ERROR (102)  
 GB = ALTERNATE FULL SCALE OUTPUT  
 GD = 10X PAID PRESSURE (25,000psi MAX)  
 GF = EXPANDED COMPENSATED TEMP RANGE:  
 65°F TO 250°F  
 65°F TO 250°F +3% FSD 90° 100°F  
 GH = 100% INTERNAL SHUNT CALIBRATION  
 GK = INTERNAL MATERIAL OPTION  
 GL = CLEANED PIPING & HOUSING / 1718 (SENSORS)  
 GP = HASTELLOY MATERIAL OPTION  
 JA = 100% ZERO ADJUSTMENT / HOUSING & SENSOR  
 JB = 80% INTERNAL SHUNT CALIBRATION  
 JU = NONE  
 MR = NON-STANDARD WIRING (SEE SALES ORDER)

PP = PRESSURE PART  
 FA = M356/62-04 (7/16-20 FEMALE)  
 FJ = 1/4-18 NPT (MALE)  
 LT = SAE-04 (7/16-20 MALE) STANDARD | CH2  
 CC = CONNECTOR  
 DH = XSJ1-2-BER (G-FIN)  
 DJ = XSJ1-4-BER (G-FIN)  
 DL = XSJ1-4-BER (G-FIN)  
 DP = XSJ2-6-BER (G-FIN)  
 PT = PRESSURE TUBE  
 S = PSIA, SEALED ABSOLUTE (REF. TO VACUUM)  
 SG = PSIG, SEALED GAGE (REF. TO 14.7psia)

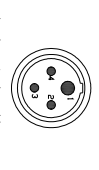
DR = PRESSURE RANGE  
 PZ = 0 - 50  
 RB = 0 - 100  
 RF = 0 - 150  
 RH = 0 - 200  
 RK = 0 - 500  
 RL = 0 - 750  
 RD = 0 - 1500  
 RT = 0 - 2000  
 RV = 0 - 3000  
 RW = 0 - 5000  
 RX = 0 - 10000  
 RY = 0 - 15000  
 RZ = 0 - 10000  
 S1 = 0 - 15000  
 S2 = 0 - 15000  
 S3 = 0 - 15000  
 S4 = 0 - 15000  
 S5 = 0 - 15000  
 S6 = 0 - 15000  
 S7 = 0 - 15000  
 S8 = 0 - 15000  
 S9 = 0 - 15000  
 S10 = 0 - 15000

D = OUTPUT  
 3 = 4 - 5 Vdc (4 WIRE, NON-ISOLATED)  
 4 = 0 - 5 Vdc (4 WIRE, ISOLATED)  
 5 = 0 - 10 Vdc (4 WIRE, NON-ISOLATED)  
 6 = 0 - 10 Vdc (4 WIRE, ISOLATED)  
 9 = 0 - 5 Vdc (3 WIRE, NON-ISOLATED)  
 10 = 0 - 10 Vdc (3 WIRE, NON-ISOLATED)  
 OUTPUT AT FULL SCALE  
 OUTPUT AT 0 PSia

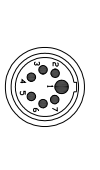
NOTES:  
 1. REFERENCE 8A1-7500-STD-3 FOR ASSEMBLY DRAWING  
 2. STANDARD MATERIALS OF CONSTRUCTION  
 SENSOIR: 15-9P or 17-4PH SST (\*)  
 PRESSURE PART: 316/316L SST (\*)  
 HOUSING BODY CAN: 316 SERIES SST (\*)  
 \* CAN BE MODIFIED BY OPTIONS DK, CP AND DU



PIN	OPTION
1	+EXC/SIG
2	-EXC/SIG



PIN	OPTION	OPTIONS 2 & 5	OPTIONS 4 & 6	OPTIONS 9 & 10
1	+EXC/SIG	-EXC	+SIG	COMMON
2	N/C or **	+SIG	+SIG	+SIG
3	-EXC/SIG	+EXC	+EXC	+EXC
4	N/C or **	-SIG	-SIG	N/C



PIN	OPTION	OPTIONS 2 & 5	OPTIONS 4 & 6	OPTIONS 9 & 10
1	N/C	N/C	N/C	N/C
2	+EXC/SIG	+EXC	+EXC	+EXC
3	N/C	+SIG	+SIG	+SIG
4	N/C	-SIG	-SIG	N/C
5	-EXC/SIG	-EXC	-EXC	COMMON
6	N/C or **	N/C or **	N/C or **	N/C or **
7	N/C or **	N/C or **	N/C or **	N/C or **

\*\* = JUMPER INDICATED PINS TOGETHER  
 \*\* = FOR OPTIONAL SHUNT or RTD SIGNAL

ENGINEERING SPECIFICATIONS	STANDARD	OPTION D	OPTION GD	OPTION GF
1. BURST PRESSURE	15X	**	10X, 25000max	**
2. BURST PRESSURE	30X	**	15X, 25000max	**
3. EXTERNAL PRESSURE	10,000 psi	**	**	**
4. STATIC ACCURACY (RESS)	0.3% FSD	0.1% FSD	0.5% FSD	**
5. NON-LINEARITY (term. pt)	0.2% FSD *	0.07% FSD *	0.3% FSD *	**
6. HYSTeresis	0.2% FSD *	0.07% FSD *	0.3% FSD *	**
7. NON-REPEATABILITY	0.1% FSD *	0.05% FSD *	0.2% FSD *	**
8. ZERO DRIFTANCE (0 70°F)	±0.5% FSD	**	±1.0% FSD	±1.0% FSD
9. SPAN DRIFTANCE (0 70°F)	±0.5% FSD	**	±1.0% FSD	±1.0% FSD
10. TOTAL ERROR	1.3% FSD	1.0% FSD	2.0% FSD	2.3% FSD
11. ZERO THERMAL ERROR	±0.5% FSD/100°F	**	±1.0% FSD/100°F	±1.0% FSD/100°F
12. SPAN THERMAL ERROR	±0.5% FSD/100°F	**	±1.0% FSD/100°F	±1.0% FSD/100°F
13. COMPENSATED RANGE	-10° to 180°F	**	**	-55° to 250°F
14. OPERATING RANGE	-55° to 180°F	**	**	-75° to 250°F
15. SENSOR CYCLING RANGE	-55° to 250°F	**	**	**
16. STABILITY	±0.1% FSD/yr	**	**	**
17. RESOLUTION	infinite	**	**	**
18. EXCITATION	18-36 Vdc	**	**	**
19. PIN-OUT CONFIGURATION	PER TABLES	**	**	**

\* VALUE IS FOR REFERENCE ONLY  
 \*\* DEFAULT TO STANDARD REQUIREMENT

PIN	OPTION	OPTIONS 2, 4, 5 & 6	OPTIONS 9 & 10
1	N/C or **	N/C or **	N/C or **
2	+EXC/SIG	+EXC	+EXC
3	N/C	+SIG	+SIG
4	N/C	-SIG	N/C
5	-EXC/SIG	-EXC	-EXC/SIG
6	N/C or **	N/C or **	N/C or **

THIS IS A CONTROLLED DRAWING AND MAY NOT BE CHANGED W/O ENGINEERING AUTHORIZATION

REVISONS	DATE	BY	REASON
1	08/21/09	MM667	SCALE 1:1
2	08/21/09	MM667	SCALE 1:1

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 FRACTIONS: 1/64  
 DECIMALS: .001  
 TOLERANCES: .001 ± .001  
 ANGLE: 1/2°  
 EX: Machine finish (all surfaces)  
 Machining to 0.015 A MAX  
 All dimensions to be consistent  
 unless otherwise noted  
 C/S: See All Related Drawings 89210

OP-50 Aerospace Div. 2770 LONG ROAD  
 CAGE CODE: 08N87 GRAND ISLAND, NY 14072  
 TEL. NO. (716)773-9300 FAX NO. (716)773-5019  
 TITLE: MODEL 7500 (STANDARD)  
 DUTLINE DRAWING  
 DRAWING NO. 801-75003113-3  
 REV. B3