INSTALLATION AND OPERATING INSTRUCTIONS

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MODEL 100-F PRESSURE TRANSDUCER SYSTEM

1. DESCRIPTION

1.01 SERIES 100 PRESSURE TRANSDUCERS

Specifically designed for the needs of UG installations, the SERIES 100 PRESSURE TRANSDUCER is basically a miniaturized version of the “E” Pressure Transducer (AT-8651) available in three (3) basic versions, depending on installation requirements. Fully compatible with existing monitoring equipment – electrical output is identical to “E” Pressure Transducer.

MODEL 100-F

Designed for use on the TH-5 Transducer Housing where multiple transducer installations are required.

MODEL 100-G

Designed for single installations, this self-contained unit is equipped with an integral mounting bracket, separate electrical connections to cable terminal and air tube connection.

The 100-G Pressure Transducer can also be used for aerial applications.

1.02 TYPE TH-5 TRANSDUCER HOUSINGS

The type TH-5 Transducer Housing is a tin plated bronze housing whish is basically a miniature version of the “B” Transducer Housing (AT-8652). It consists of cavities for mounting and connecting up to five (5) Model 100-F Pressure Transducers. The Transducer Housings are available in the following versions:

MODEL TH-5A

Includes a six (6) pair PIC cable stub which provides electrical connection from the pressure transducers into an intermediate termination such as the AT-8653 “B” or AT-8746 “C” Junction Box.

MODEL TH-5B

Includes a twelve (12) pair PIC cable stub which provides electrical connection from the pressure transducers directly to a telephone cable splice case. A spare insulated pair is terminated in each transducer cavity to facilitate cable pair changes.

MODEL TH-5C

Same as TH-5B, but fitted with a 25-pair PIC cable stub.

MODEL TH-5D

Same as TH-5C, but fitted with a 25-pair PASP cable stub.

Same as TH-5C, but fitted with a 25-pair PIC cable stub instead of 22AWG.

2. OPERATION

The Series 100 Pressure Transducers convert gas pressure to electrical resistance (See Table A). The working pressure range is from 0 to 9.5 PSIG. The electrical resistance changes at 0.5 PSIG intervals and remaining constant at pressures greater than 9.25 PSIG and less than 0.25 PSIG.

3. INSTALLATION

3.01 Before installation, each transducer must be tested to ensure proper operation (See Section 3.08).

3.02 The Type TH-5 Transducer Housing may be mounted in an approved manner in any convenient position, horizontal or vertical on manhole walls, ceilings or floors. The housings may be mounted directly to the manhole masonry or mounted on framing channels. Mounting studs will provide clearance when using an elbow connector into the housing.

3.03 The Transducer Housing should be bonded to the manhole ground using bonding ribbon.

JOINING STUB CABLE TO MAIN CABLE

3.04 The stub cable on the Transducer Housing should be bridged to the main cable as follows:

a. Identify the main cable specified on the work print.
b. Open the splice closure and identify the specified pairs.
c. Bridge all the stub cable pairs to the cable pairs identified in (b). See Tables B, C and D for primary and spare pair identification in Transducer Housing.
d. Verify with the test desk that the pairs are clear of trouble and close the splice.

TERMINATION TH-5A TRANSDUCER HOUSING STUB CABLE TO 'B' OR 'C' JUNCTION BOX

3.05 Refer to BSP Section 637-222-100 for terminating procedure at 'B' Junction Box.

PRESSURE CONNECTIONS

3.06 Each transducer in the TH-5 Transducer Housing is an individual, air tight cavity. The cavity has a plugged 1/8 NPT pressure entrance port for connection of a plastic tube connector. Each cable to be monitored must be pneumatically connected by 3/8 inch 'B' plastic tubing (P/N 5410A6).

3.07 After the tubing has been installed and pressurized, check all fitting with 'E' pressure testing solution for leaks.

TABLE A

RELATION OF CABLE PRESSURE
AND TRANSDUCER RESISTANCE

NORMAL PRESSURE RANGE AT TRANSDUCER (psi)	ELECTRICAL RESISTANCE (kilohms)
0.0	100
0.5	110
1.0	122
1.5	135
2.0	150
2.5	166
3.0	186
3.5	208
4.0	232
4.5	265
5.0	301
5.5	344
6.0	400
6.5	468
7.0	568
7.5	698
8.0	898
8.5	1200
9.0	1820
9.5 and higher	3820

TRANSDUCER TESTING AND ADJUSTMENT

3.08 The transducer may be tested while mounted to the Transducer Housing or by itself. The transducer is equipped with an altitude adjustment screw which is located under the protective knurled cap at the top of the transducer (See Figure 1). The altitude setting is normally factory set at sea level. If the location at which transducer is being installed is at an altitude greater than sea level, adjustment is required. To test and adjust the transducer, proceed as follows:

1a. For mounted transducers, identify the cable pair associated with the transducer mounted to the housing and connect a digital ohmmeter to the pair (See Table B, C and D for pair identification).

1b. For non-mounted transducers, connect a digital ohmmeter to the screw terminals located on the bottom of the transducer.

2. Remove the knurled cover cap to expose the slotted altitude adjustment screw.

3. Using a 1/8” blade screw driver turn adjustment screw until the digital ohmmeter reads 100K ohms ± 2000 ohms.

CAUTION: It is important to set the adjustment screw for the 100K ohm position JUST BEFORE THE TRIP POINT into the next electrical value of 110K ohms and STOP. Rotate the screw in both directions to locate this trip point. Never rotate clockwise more than ¼ - ½ turn or transducer will be damaged. There is no graduated value between each electrical step (See Table A).

4. Replace knurled cover cap. (Note: Cap has an O-Ring at bottom and should be leak proof when tightened).

TABLE B

PAIR NO.	CAVITY NO.*	PAIR COLOR	TYPE PAIR	REMARKS
1	1	BLU/WHT	Primary	TH-5A 6-Pair Cable
2	2	ORN/WHT		
3	3	GRN/WHT		
4	4	BRN/WHT		
5	5	SLA/WHT		
6	N/A	BLU/RED	Talk	

**See Figure 2*

TABLE C

PAIR NO.	CAVITY NO.*	PAIR COLOR	TYPE PAIR	REMARKS
1	1	BLU/WHT	Primary	TH-5B & TH-5C 12-Pair and 25-Pair (Primary & spare pair)
2	2	ORN/WHT		
3	3	GRN/WHT		
4	4	BRN/WHT		
5	5	SLA/WHT		
6	1	BLU/RED	Spare	
7	2	ORN/RED		
8	3	GRN/RED		
9	4	BRN/RED		
10	5	SLA/RED		
11	N/A	BLU/BLK	Talk	

**See Figure 2*

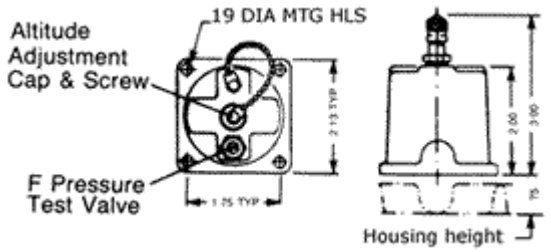

Figure 1

INSTALLING ADDITIONAL TRANSDUCERS

3.09 As new cables are added, additional Model 100-F (Figure 1) transducers may be installed in the vacant cavities in the transducer housings, as follows:

1. Remove blank cover (2237M49) and 1/8 pipe plug from cavity to be used. (Save four (4) bolts and lockwashers).
2. Remove primary pair (terminals covered with black insulation) and expose the spade portion of the terminal clips. (Refer to Tables B, C and D for primary pair in each cavity, spare pair has red insulation.)
3. Place 'O' Ring over cable pair.
4. Attach spade terminals to the two (2) #8 screws on the bottom of the 100-F Transducer.
5. Attach the 100-F Transducer enclosure to the TH-5 Housing using the bolts and lockwashers saved in Step one (1) and securely tighten. (Check that 'O' Ring is properly seated).
6. Attach cavity to cable using 3/8" plastic tubing with an approved fitting in the location of the pipe plug removed in Step one (1).
7. Test and adjust if required, the transducer as covered in 3.07 and 3.08.

3.10 The Model TH-5 Transducer Housing specifications are as follows:

Housing . . . Tin Plated bronze: including cover caps with stainless steel screws.
Electrical Connections . . . 15 ft. standard stub length:

TH-5A - #22 AWG, 6 pair PIC type TEL-U
TH-5B - #22 AWG, 12 pair PIC type TEL-U
TH-5C - #22 AWG, 25 pair PIC type TEL-U
TH-5D - #22 AWG, 25 pair PASP
TH-5F - #22 AWG, 25 pair lead
TH-5G - #24 AWG, 25 pair PIC type TEL-U

Pressure Connections . . . Five (5) each 1/8" FPT ports (shipped with tin plated brass pipe plugs)
Maximum Test Pressure . . . 45 PSIG
Weight (without Transducers) . . . 5.5 lbs.

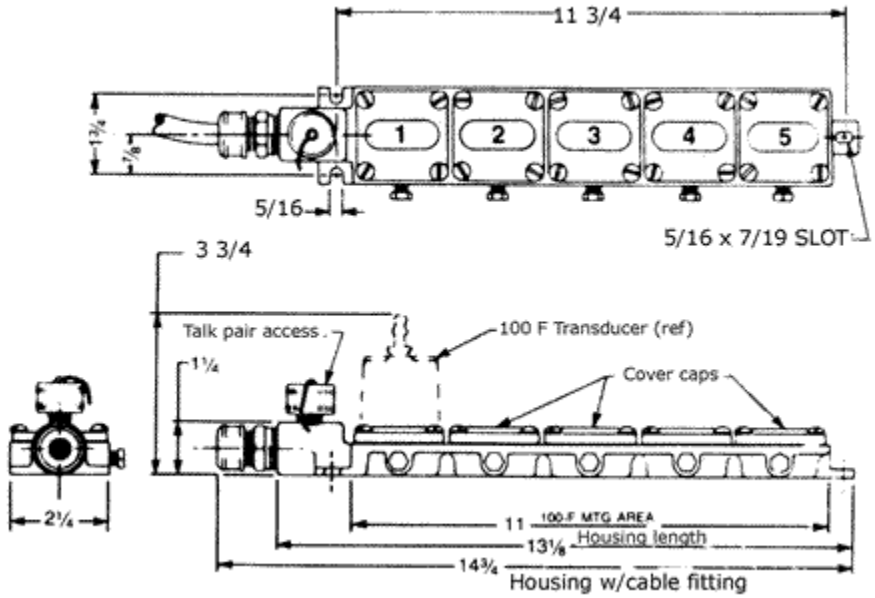

Figure 2

4. **PARTS LIST**

PART NO.	DESCRIPTION
100-F	Pressure Transducer Assembly
TH-5A	Five Bank Housing Assy. (6-Pair-Tel-U)
TH-5B	Five Bank Housing Assy. (12-Pair-Tel-U)
TH-5C	Five Bank Housing Assy. (25-Pair-Tel-U)
TH-5D	Five Bank Housing Assy. (25-Pair-PASP)
TH-5F	Five Bank Housing Assy. (25-Pair-Lead)
TH-5G	Five Bank Housing Assy. (25-Pair-24 AWG-Tel-U)
2227A453	'G' Mounting Bracket
2237M49	Blank Cover Cap
2237M55	Seal Cap, Elevation Adjusting w/chain
2237A73	Talk-Pair Cover Cap w/chain
239-A	Pipe Plug, 1/8 NPT, Hex Head

615B066-01	Bolt, Stainless Steel
1211D003	Lock Washer, Stainless Steel
4220A303	Strain Relief Connection (TH-5)
5430A032	O-Ring (Transducer)
5612A13	'F' Pressure Test Valve Assembly

5. WARRANTY

5.01 Each TX-Series 100 Pressure Transducer system is warranted to be free of defects both in workmanship and material for a period of one (1) year from the date of shipment, providing equipment has been installed and operated according to the instruction in this manual.

5.02 TX assumes no responsibility for damages resulting from improper installation or shipment of unit, whether damage is done intentionally or otherwise.

5.03 Damage incurred in transportation is the responsibility of the Telephone Company, who shall make the necessary arrangements for filing claims against the carrier.

5.04 TX has reserved the right to review all claims for "in warranty" replacement after inspection of the return material and to issue invoicing to cover the cost of repairing the unit if return was not justifiable under the terms of the warranty.

5.05 TX will replace, free of charge, all parts found to be defective in workmanship or material, FOB Randolph, New Jersey.

5.06 All defective equipment or parts shall be forwarded to:

TX Technology Corporation
7 Emery Avenue
Randolph, New Jersey 07869
Attn: Customer Service Department

5.07 In the event of an "in warranty" failure, TX should be notified directly by telephone.

SERVICE HOTLINE
1-800-CHATLOS
973-442-7500 (in New Jersey)

IMPORTANT

WHEN INSTALLING 100-G AERIAL TRANSDUCERS WITH AIR CONNECTION FROM UNDERGROUND, USE LEAD. TIN PLATED COPPER OR ALUMINUM LINED POLYETHYLENE TUBING ONLY.