



SEA-BIRD ELECTRONICS, INC.

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SBE P/N 90085

| DATE | SYM | REVISION RECORD | AUTH | DR | CHK |
|-------|-----|---------------------------|------|-----|-----|
| 01.99 | A | Added bitmap, Reformatted | MJ | | |
| 9.03 | B | Added PN 30458 | CB | KLP | |
| 1.08 | C | Add drawing 67027 | CB | CB | |
| 2.14 | D | Remove Thermistor Guard | ET | CB | |

SBE Customer Installed TC Duct Kit

KIT CONTENTS

| SBE P/N | Part Description | Primary SBE Application | QTY |
|---------|----------------------------------|---|--------|
| 23226 | Thermistor duct, no. 2 | Conductivity duct | 1 |
| 23337 | Pump air release plug | Installed in Y-fitting (30387) | 1 |
| 23698.1 | Low viscous T-duct | T-Duct | 1 |
| 30364 | Mach screw, 2-56 x 1/4 PH nylon | Secures T-duct to probe guard | 2 |
| *30382 | Tygon tube, 1/4 ID, 1/32 wall | Fits 23226 duct to 23698 duct | 1-1/2" |
| *30383 | Tygon tube, 1/4 ID, 1/8 wall | Fits 23226 C-duct to Cell, bottom end | 2' |
| *30384 | Tygon tube, 7/16 ID, 1/16 wall | Connects Coupling and C-Duct to cell | 7" |
| 30387 | Y-Fitting tube | Fits to top of plumbing, with air bleed installed | 1 |
| *30388 | Tygon tube, 1/4 ID, 1/2 wall | Main plumbing tube. | 4' |
| 30389 | Cable tie. 4" Richo | Secures plumbing to Y-fitting and coupling | 20 |
| 30458 | Cable Tie, 15" Richco Wit-50L | Secure Y-fitting to CTD | 2 |
| *30579 | Tygon tube, 3/8" ID x 1/2" OD | Oxygen Sensor Plenum Adapter | 6" |
| 30814 | Morrison seal, .026 hole, .24 OD | Morrison seal for T-Duct (23698) | 1 |

*Kit may contain more tubing than is typically required to plumb a CTD.

APPLICATIONS:

Top Air Bleed Valve

| SBE P/N | Part Description | Primary SBE Application | QTY |
|---------|---------------------------|-----------------------------|------|
| 23337 | Pump Air Release Plug | Air Bleed for Y-Fitting | 1 |
| 30387 | Tube, 1/2" Y-Fitting | Top connection for plumbing | 1 |
| 30388 | Vinyl tubing, 3/4" x 1/2" | Main Plumbing tube | ≈ 3" |

1. Air release (23337) installs into the single end of the Y-fitting (30387) such that flat side of air bleed faces out, and concave side faces the "Y".
2. Slide about a 3-4" length of heavy tubing (30388) over the air bleed side. This will be the top of your plumbing arrangement.

Conductivity cell Duct Assembly

| SBE P/N | Part Description | Primary SBE Application | QTY |
|---------|-------------------------------|----------------------------------|---------|
| 23226 | Thermistor Duct, No. 2 | Conductivity Duct | 1 |
| 30382 | Tygon Tube, 1/4ID x 1/32 wall | Spare Temp/Cond Connector tubing | 1 piece |
| 30383 | Tygon Tube, 1/4ID x 1/8 wall | Spare C-Duct fitting tube | 1 piece |
| 30384 | Tygon Tubing, 3/4" x 1/2" | Used with C-Duct fitting tube | ≈ 1" |

1. Use ≈ 3/16" length of thicker tubing (30383) as a base for the C-Duct fitting.
2. Install ≈ 1-1/2" length of conductivity cell tubing (30384) onto this piece.
3. Install assembly onto c-duct on the side that changes diameters. Push it all the way down.
4. C-Duct installs into bottom end of cell with this seal assembly.
5. Slip ≈ 1" length of the thinnest tubing (30382) over other end of C-Duct.
6. This will allow a good seal between the C-duct and the T-duct.

SBE DRAWING: 41223, 67027

TITLE: Inertia-Balanced Plumbing Configuration

Sea-Bird Electronics Procedure

PROCEDURE NUMBER: 67051

TITLE: SBE Customer Installed TC Duct Assembly

REVISION: D

EFFECTIVE DATE: 02/25/2014

CHECKED BY: _____ PAGE 1 of 2



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Thermistor Duct Assembly

| SBE P/N | Part Description | Primary SBE Application | QTY |
|---------|------------------------------|---|-----|
| 23698 | Low Viscous T-Duct | Temperature Duct | 1 |
| 30364 | Mach screw, 2-56 x 1/4 PH NY | Secures T-Duct to Temp Probe Guard | 2 |
| 30814 | Morrison Seal, .026 hole | T-Duct Morrison seal, installed in T-Duct | 1 |

1. Lubricate Morrison seal with a silicon-based lubricant, such as "Parker Super-O."
2. Press Morrison seal all the way into barbed end of T-Duct (23998).
3. There is an open hole only on one side of the Morrison seal. Insert seal this end first.
4. It must go all the way in, past the side holes.
5. Fit Temperature Probe Duct assembly into probe guard such that the screw holes in the duct base line up with the holes on the guard.

Temperature and Conductivity Flow Duct Installation

1. Very carefully slide whole assembly over temperature probe, and screw it back tight.
2. Fit side opening of probe duct assembly onto 23226 duct with the tubing (30382) on the duct.
3. Carefully line up Temperature and Conductivity sensors into their mount bracket, and slide conductivity sensor down onto its duct.
 - a. Make sure you don't let the duct bend as you press cell into it.
 - b. It is easy to crack a cell if the duct is not properly aligned.

Replacement sensor plumbing

| SBE P/N | Part Description | Primary SBE Application | QTY |
|---------|--------------------------------|--------------------------------------|--------|
| 30384 | Tygon tube, 7/16 ID, 1/16 wall | Connects Coupling and C-Duct to cell | 3", 1" |
| 30388 | Vinyl tubing, 3/4" x 1/2" | Main Plumbing tube | 4 ft |
| 30389 | Cable tie, 4" | Secure plumbing to fittings | 12 |

1. If you are using a tube support, follow tube support instructions for connection of cell.
2. If you are not using a tube support, connect plumbing to cell with the coupler as follows.
 - a. Connect $\approx 2''$ length of 30384 tubing to one end of the coupler.
 - b. Connect coupler first to heavy tubing (30388) and second to top end of the cell.
3. Use the 30388 heavy tubing to form a flowing path through each sensor ducting system.
4. Use the small cable ties (30389) to make a good connection at tubing/sensor interface points.
5. Refer to the included diagram for an idea of how to plumb a standard CTD.

SBE DRAWING: 41223, 67027

TITLE: Inertia-Balanced Plumbing Configuration

Sea-Bird Electronics Procedure

PROCEDURE NUMBER: 67051

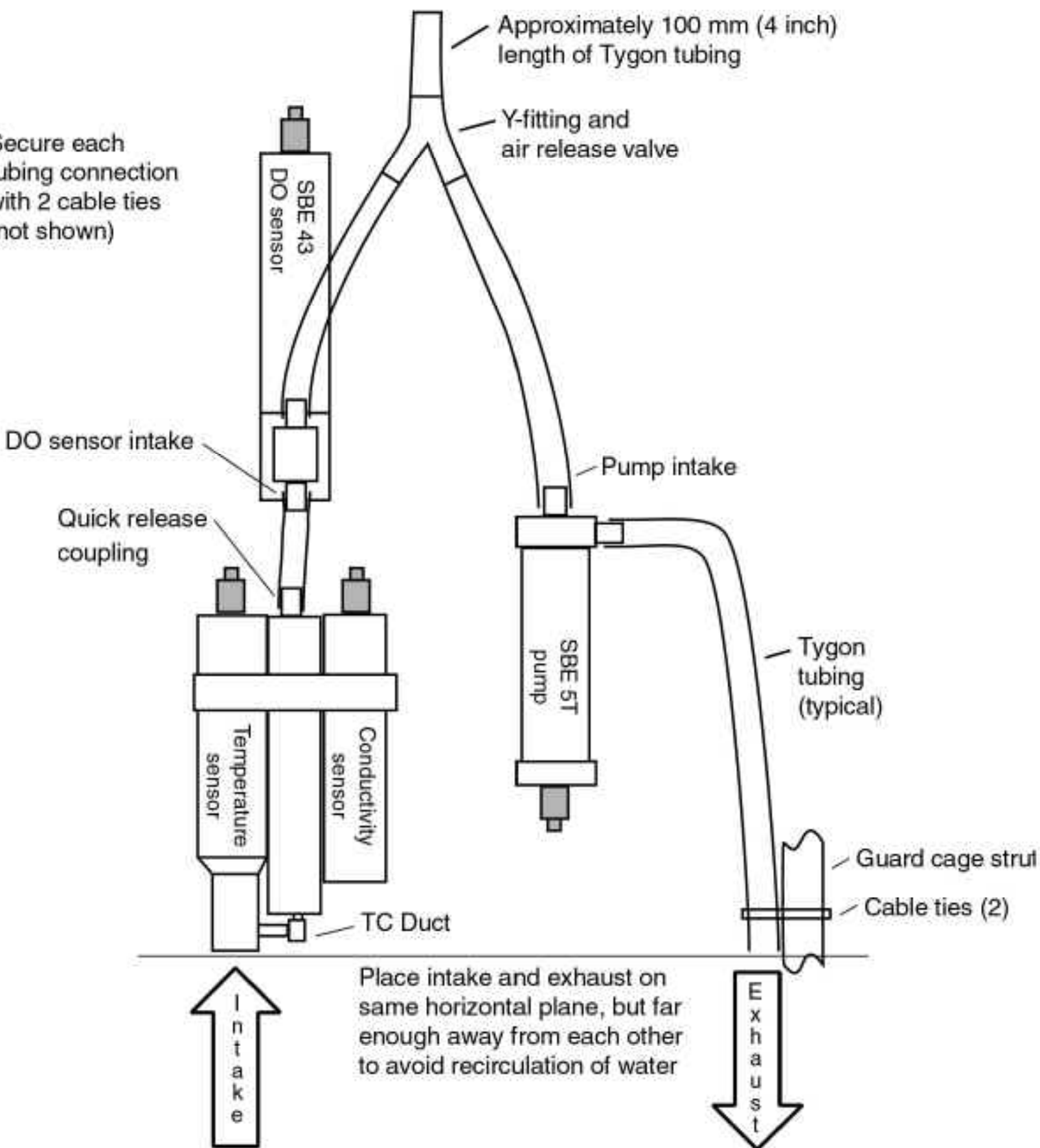
TITLE: **SBE Customer Installed TC Duct Assembly**

REVISION: D

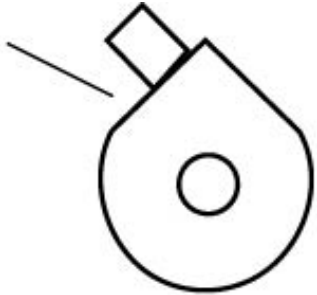
EFFECTIVE DATE: 02/25/2014

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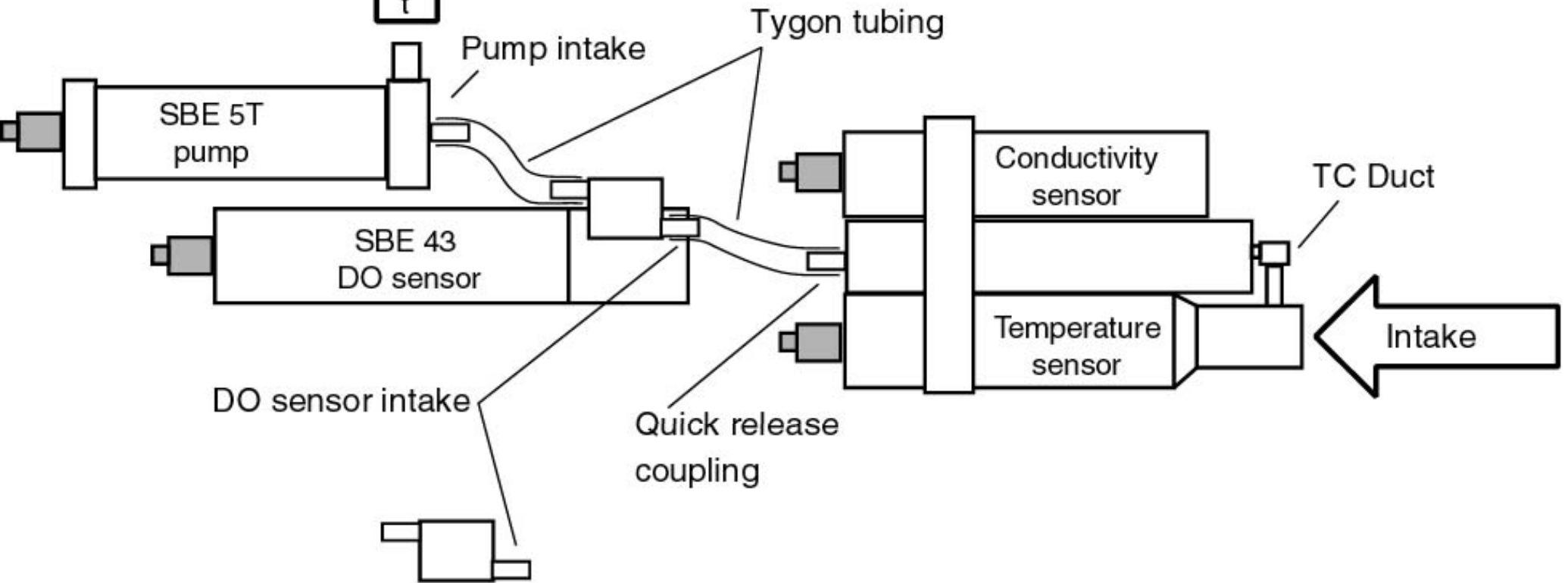
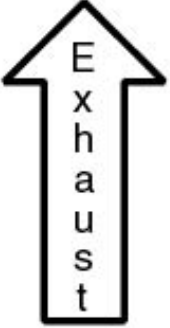
Secure each tubing connection with 2 cable ties (not shown)



Place pump exhaust above intake and DO sensor, with exhaust outlet 'corner' up

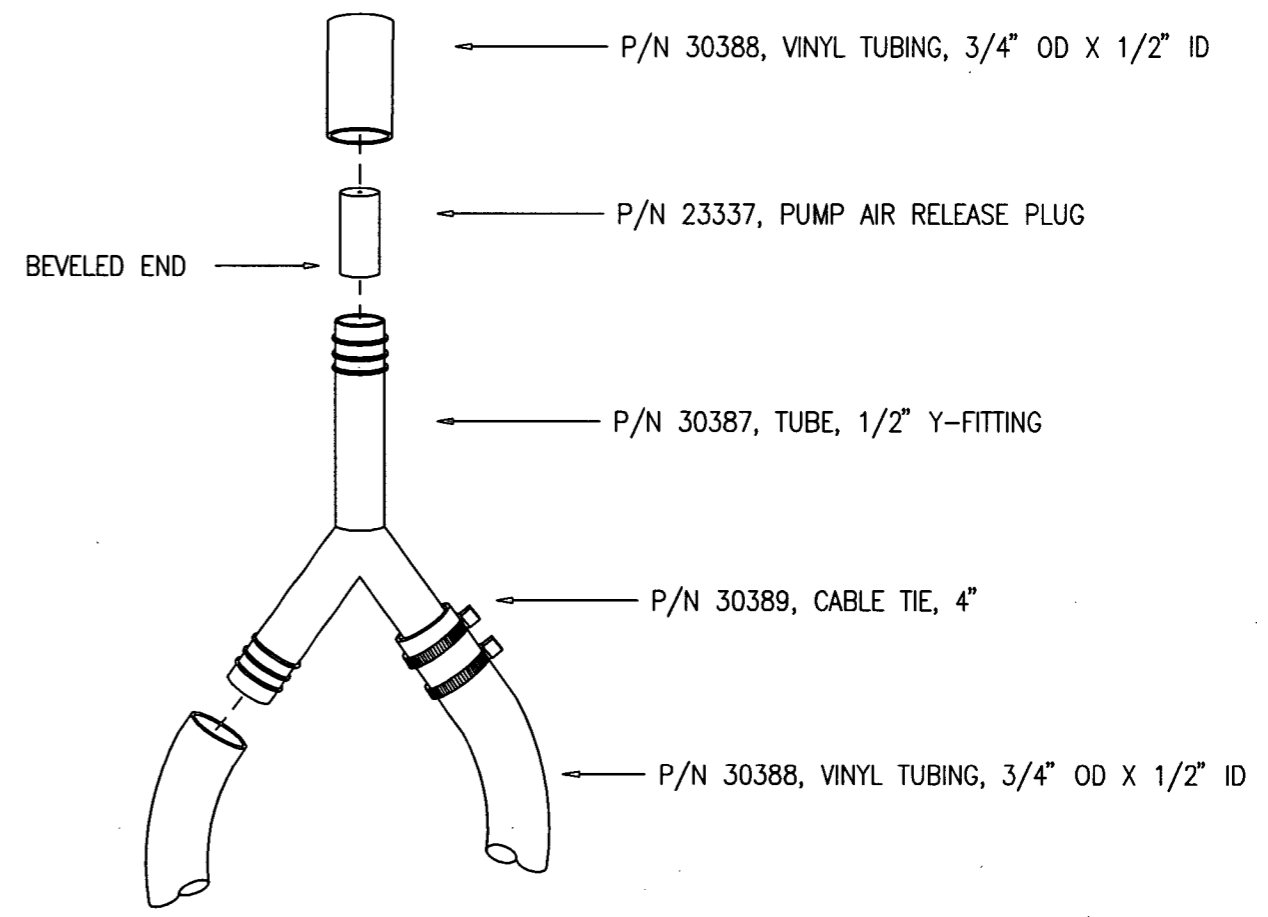
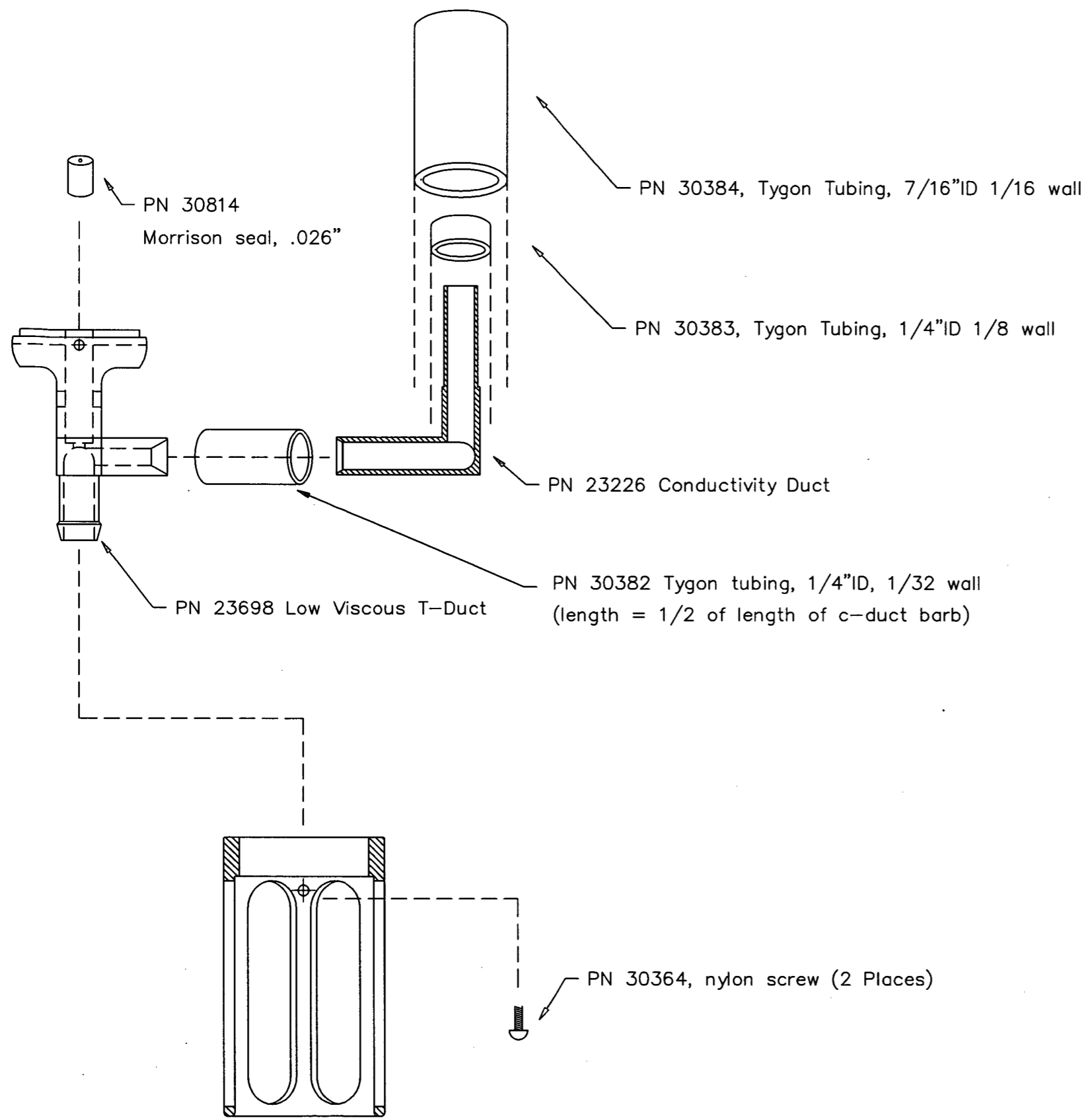


Secure each tubing connection with 2 cable ties (not shown)



Place DO sensor with exhaust above intake, oriented as shown ($\pm 45^\circ$)

| DATE | SYM | REVISION RECORD | AUTH. | DR. | CK. |
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| TOLERANCES | SEA-BIRD ELECTRONICS, INC | | | | |
| FRACTIONAL | P/N 90151 | SCALE N.T.S. | DRAWN BY MJ | | |
| DECIMAL | TITLE TC Duct Kit Assembly | | | | |
| ANGULAR | DATE 02.16.99 | DRAWING NUMBER 67027 | REV | | |