



Sea-Bird Electronics, Inc.  
1808 136th Place NE  
Bellevue, WA 98005  
USA

Phone: (425) 643-9866  
Fax: (425) 643-9954  
E-mail: seabird@seabird.com  
Web: www.seabird.com

**APPLICATION NOTE NO. 40**

**Revised May 2005**

**SBE 5T PUMP SPEED ADJUSTMENT INSTRUCTIONS**

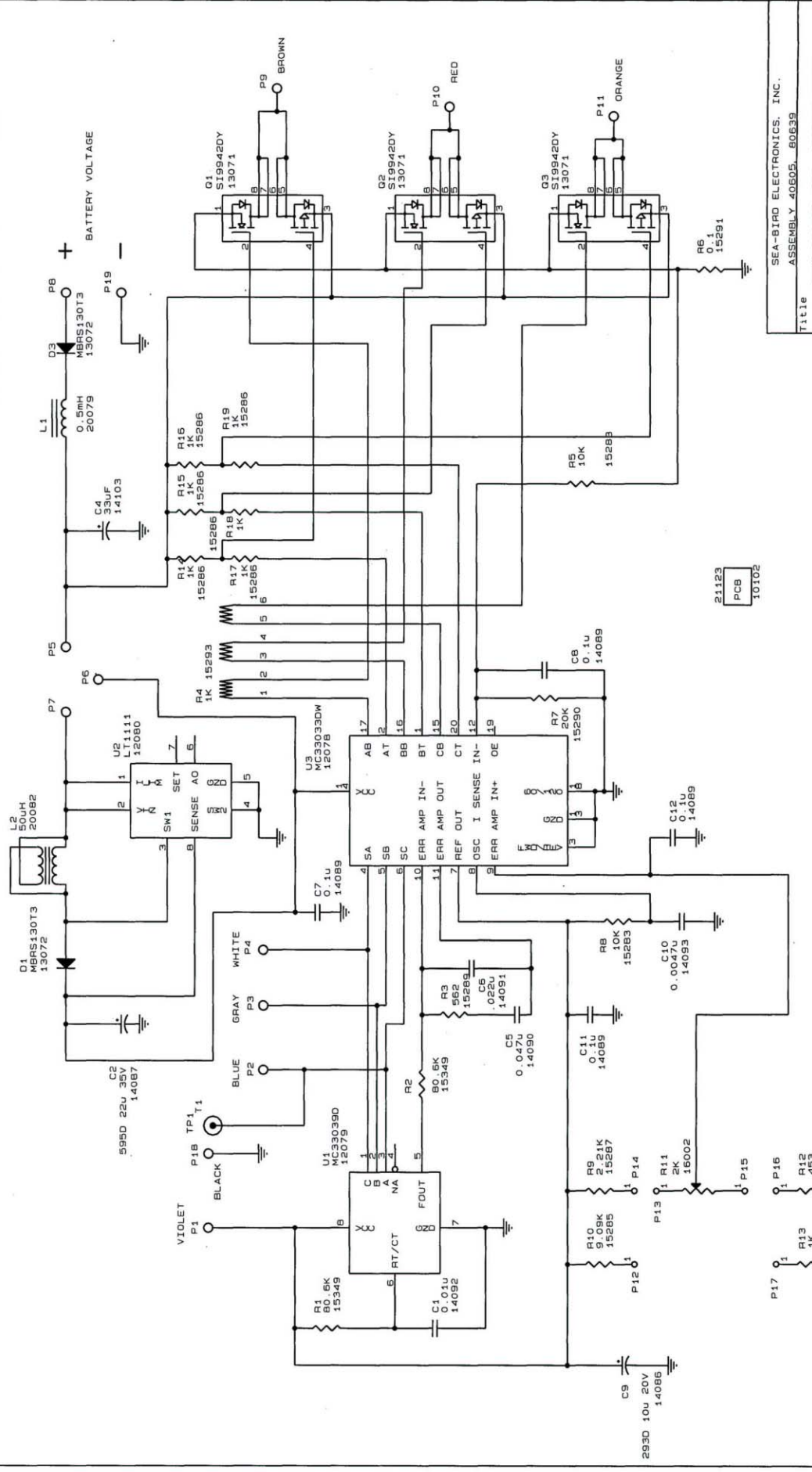
**Equipment:** DC power supply  
Frequency counter

**Drawings:** 31441B (schematic)  
41250A (assembly)

The pump housing must be disassembled to adjust the pump speed. Referencing above drawings:

1. Remove the white plastic end cap retainer ring located at the connector end of the pump by twisting in a counter-clockwise motion.
2. Install a 2-pin dummy plug with locking sleeve over the bulkhead connector to provide a good grip on the pump connector and protect the connector pins. Rotate the connector back and forth while carefully pulling the end cap away from the housing. Pull the end cap (piston o-ring seal) out of the housing. The motor and electronics assembly are attached to the end cap and will come out as a unit.
3. Connect the positive lead of your frequency counter to the yellow test post (T1) (drawing 41250A). Connect the frequency counter ground (negative) to the power supply ground (negative).
4. Supply power:
  - **Low voltage pump** (pump with LV in the serial number) - Supply 6 volts DC power to the bulkhead connector (large pin is common, small pin is positive) or directly to the PCB (P8 is positive, P19 or P18 is common, drawing 41250A).
  - **Normal voltage pump** - Supply 12 volts to the bulkhead connector (large pin is common, small pin is positive) or directly to the PCB (P8 is positive, P19 or P18 is common, drawing 41250A).
5. A 2K ohm potentiometer (R11, drawing 41250A) is located on the back side of the board. Adjust the potentiometer to obtain the frequency corresponding to the desired speed (Frequency \* 30 = rpm):
  - Pittman **18.2Ω motor** (P/N 3711B113-R1) - Set jumper position P15 to P17 (1300 rpm) and P12 to P13 (1300 rpm), and adjust the speed as desired, up to the nominal maximum of 2000 rpm.
  - Pittman **7.4Ω motor** (P/N 3711B112-R1) - Set jumper position P15 to P16 (3000 rpm) and P14 to P13 (3000 rpm), and adjust the speed as desired, up to the nominal maximum of 4500 rpm. To adjust speed below approximately 2200 rpm, set jumper position P15 to P17 (1300 rpm) and P12 to P13 (1300 rpm), and adjust speed using the potentiometer.
  - Pittman **3.55Ω motor** (P/N 3711B112-R2) - Set jumper position P15 to P16 (3000 rpm) and P14 to P13 (3000 rpm), and adjust the speed as desired, up to the nominal maximum of 4500 rpm. To adjust speed below approximately 2200 rpm, set jumper position P15 to P17 (1300 rpm) and P12 to P13 (1300 rpm), and adjust speed using the potentiometer.
6. Disconnect the frequency counter and the power supply. **Make sure the O-ring and mating surfaces are clean.** Lightly lubricate the o-ring before inserting the connector end cap into the housing. Replace the pump end cap retainer.

DATE	SYN	REV	DESIGN	REVISION	REVISION	DATE	BY	CHK
08/30/85	B	1	ENR22	RY/AR	BN	EC	WAS	BSUF



JUMPER P12 TO P13 AND P17 TO P15 FOR 1300 RPM  
 JUMPER P14 TO P13 AND P16 TO P15 FOR 3000 RPM

SEA-BIRD ELECTRONICS, INC.	
TITLE	ASSEMBLY 40605_80639
SIZE	PUMP DRIVER SMT. PITTMAN MOTOR
REV	Document Number 31441
DATE	August 30, 1995 Sheet 1 of 1

DATE	SYM	REVISION RECORD	AUTH. DR.	CHK.
4/05	A	ADD 801572-# ASSY	CB	CB

SLB PRINTED ON 10-10-20 13 APR 2005  
 PART NUMBER..... DESCRIPTION..... BPA

- 80675 SBE 5T #5VDC MOTOR/DRIVER, 7.4 OHM 1.0000
- 80081 MOTOR, PUMP, 7.4 OHM 1.0000
- 23595 SPEED PUMP PCB MOUNT 1.0000
- 30235 WASHER, WN-2, #2 NYLON 2.0000
- 30357 MACH SCREW, 2-56 X 1/4 2.0000
- 30560 MACH SCREW, 2-56 X 9/16 2.0000
- 80639 PUMP DRIVER, SURFACE MOUNT /DNG 4060SC 1.0000

SLB PRINTED ON 10-10-21 13 APR 2005  
 PART NUMBER..... DESCRIPTION..... BPA

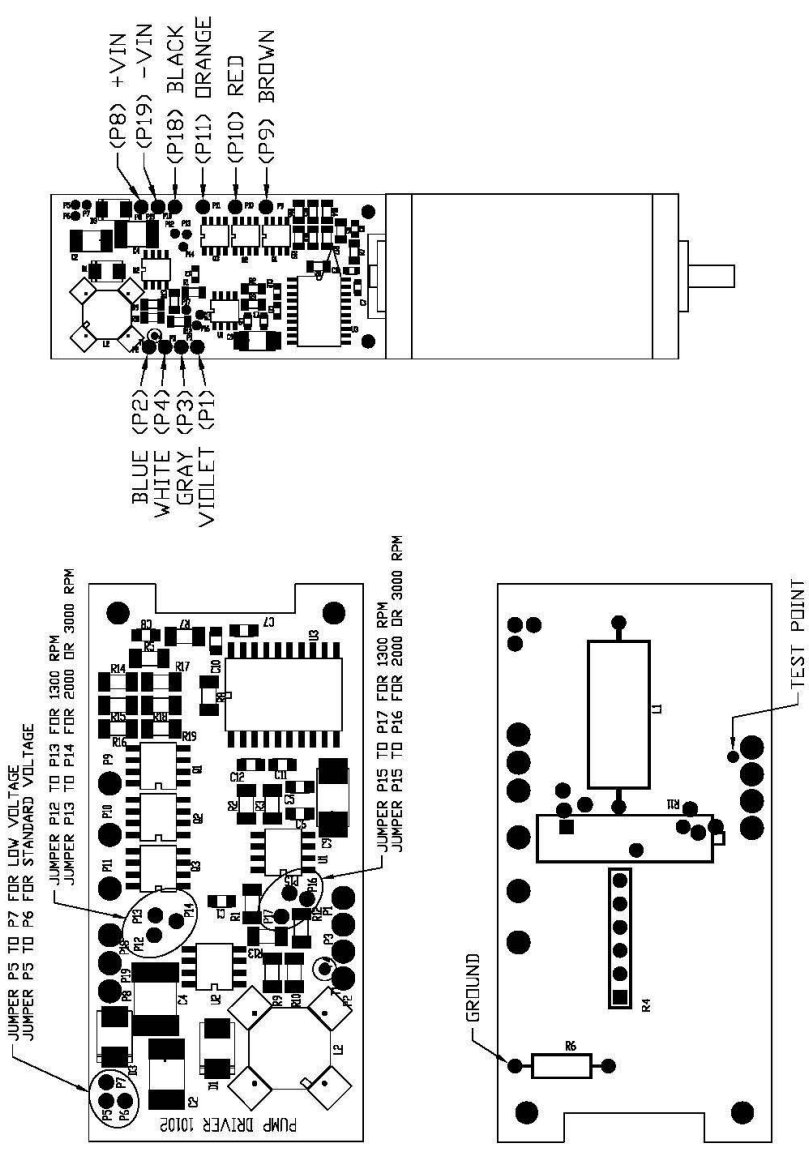
- 80676 SBE 5T #5VDC MOTOR/DRIVER, 18.02 OHM 1.0000
- 20080 MOTOR, PUMP, 18.02 OHM 1.0000
- 23595 SPEED PUMP PCB MOUNT 1.0000
- 30235 WASHER, WN-2, #2 NYLON 2.0000
- 30357 MACH SCREW, 2-56 X 1/4 2.0000
- 30560 MACH SCREW, 2-56 X 9/16 2.0000
- 80639 PUMP DRIVER, SURFACE MOUNT /DNG 4060SC 1.0000

SLB PRINTED ON 10-10-21 13 APR 2005  
 PART NUMBER..... DESCRIPTION..... BPA

- 801572 SBE 5T #5VDC MOTOR/DRIVER, 3.55 OHM 1.0000
- 20176 MOTOR, PUMP, 3.55 OHM 1.0000
- 23595 SPEED PUMP PCB MOUNT 1.0000
- 30235 WASHER, WN-2, #2 NYLON 2.0000
- 30357 MACH SCREW, 2-56 X 1/4 2.0000
- 30560 MACH SCREW, 2-56 X 9/16 2.0000
- 80639 PUMP DRIVER, SURFACE MOUNT /DNG 4060SC 1.0000

FINISH GENERIC ASSEMBLY TO SPECIFIC ASSEMBLY BY INSTALLING VOLTAGE AND SPEED JUMPERS AS SHOWN ON THE CHART

<b>SEA-BIRD ELECTRONICS, INC</b>			
PART NO.	VARIOUS	DRWN BY	DG
SCHEM	31441B	FR. SCALE	0.90
TITLE SBE 5T MOTOR/DRIVER ASSEMBLY			
DATE	2/13/03	DWG. NO.	41250
		REV	A



SBE PN	DESCRIPTION	VOLTAGE	SPEED	SPEED
80675.2	#3 WINDING (7.4 OHM), STANDARD VOLTAGE, 2000 RPM	P5-P6	P13-P14	P15-P16
80675.2LV	#3 WINDING (7.4 OHM), LOW VOLTAGE, 2000 RPM	P5-P7	P13-P14	P15-P16
80675.3	#3 WINDING (7.4 OHM), STANDARD VOLTAGE, 3000 RPM	P5-P6	P13-P14	P15-P16
80676.1	#5 WINDING (18.02 OHM), STANDARD VOLTAGE, 1300 RPM	P5-P6	P12-P13	P15-P17
80676.1LV	#5 WINDING (18.02 OHM), LOW VOLTAGE, 1300 RPM	P5-P7	P12-P13	P15-P17
80676.2	#5 WINDING (18.02 OHM), STANDARD VOLTAGE, 2000 RPM	P5-P6	P13-P14	P15-P16
80676.2LV	#5 WINDING (18.02 OHM), LOW VOLTAGE, 2000 RPM	P5-P7	P13-P14	P15-P16
801572.2	#3 WINDING (3.55 OHM), STANDARD VOLTAGE, 2000 RPM	P5-P6	P13-P14	P15-P16
801572.2LV	#3 WINDING (3.55 OHM), LOW VOLTAGE, 2000 RPM	P5-P7	P13-P14	P15-P16
801572.3	#3 WINDING (3.55 OHM), STANDARD VOLTAGE, 3000 RPM	P5-P6	P13-P14	P15-P16