



SERVICE INSTRUCTION M20-116

Date: May 18, 2009

SUBJECT: TO ADVISE OWNERS; The availability of an ELT RETROFIT KIT (406MHz SARSAT) to replace existing 121.5MHz ELT installations.

MODELS/ SN AFFECTED: All M20 thru M20TN Series Aircraft (OPTIONAL)

TIME OF COMPLIANCE: OPTIONAL RETROFIT KIT

INTRODUCTION: This Retrofit kit replaces the 121.5MHz ELT with a 406MHz SARSAT ELT. This is due to the obsolescence of the 121.5MHz locator system as of February 2009. The kit contains the necessary components to install the ARTEX ME406 SARSET ELT and it's associated antenna. The kit also allows mounting of the antenna without removal of the dorsal assembly, thereby minimizing paint matching and touch-up.

INSTRUCTIONS: READ ENTIRE PROCEDURE BEFORE BEGINNING.

STEP 1 - ELT ME406 INSTALLATION 940181-501: (refer to Figures 1 thru Figure 3)

NOTE:

The owner / operator of an aircraft is responsible for registering or re-registering the ELT with the relevant Cospas/Sarsat point of contact according to the country code programmed into the ELT.

- 1.1 Turn master switch - OFF.
- 1.2 Remove LH and RH Tailcone access panels.

NOTE:

Some earlier M20 series aircraft only have LH access panel.

- 1.3 Disconnect Battery(s).
- 1.4 Remove the existing ELT from the aircraft.
- 1.5 Install the ME406 unit. Refer to the ARTEX documentation "Operation, Installation and Maintenance Manual ME-406 and ME-406HM ELT", ARTEX P/N 570-1600 Rev G or later FAA approved revision for transmitter, remote switch and buzzer mounting instructions. Mooney recommends that the ME-406 be mounted in the same location as the original ELT, but the ME-406 may be located anywhere in the aircraft pursuant to the guidelines of the referenced document, and within the weight, balance, and center of gravity envelope of the subject aircraft.
- 1.6 Proceed to STEP 2.4 - ELT 406MHz Antenna Installation.

STEP 2 - ELT 406MHz ANTENNA INSTALLATION 940180-501: (refer to Figures 4, 5)

NOTE:

Models with existing dorsal or externally mounted antennas, can be replaced with 110-773 (Rev B) antenna when installed in accordance with the ARTEX Manual 570-1600 Rev G or later FAA approved revision. If (optionally) replacing the dorsal mounted antenna, removal / reinstall of dorsal fin and paint touch-up will be required.

- 2.1 Turn master switch – OFF.
- 2.2 Remove LH and RH Tailcone access panels.
- 2.3 Disconnect Battery(s).
- 2.4 Disconnect and remove the existing coaxial cable from the ELT antenna.
- 2.5 On dorsal mounted antennas, remove 2 Avex rivets mounting dorsal fin as described in Figure 4.

NOTE:

Models M20, M20A, B, C, D, E, F, G and some M20J have different or no dorsal fin. Locate 810517-1 Doubler to location shown in Figure 4.

- 2.6 Match drill 810517-1 Doubler to existing holes in dorsal, drill holes to .125 (3 places). Installation may require extra rivet hole(s) to existing dorsal mounting to attach 810517-1 doubler.
- 2.7 Locally remove any epoxy primer where 810517-1 contact tailcone skin. Ground contact of 110-773 antenna must be less than .003 OHM.

NOTE:

If bare metal surfaces are needed for surface preparation they should be treated with Alodine1200 (or similar compound) to eliminate aluminum oxidation.

- 2.8 Install 810517-1 Doubler using (3) CR3213-4-(x) Rivets (see in Figure 4).
- 2.9 Match 810517-1 Doubler to tailcone skin, drill holes to .098 (5 places) and countersink outside of 350000-12 Skin.
- 2.10 Install (5) MS20426AD3 Rivets to secure 810517-1 Doubler to tailcone skin.
- 2.11 Match 810517-1 Doubler to tailcone Skin, drill .562" diameter hole for antenna mounting.
- 2.12 Install 110-773 Antenna assembly using hardware from kit and torque 25 to 30 in lbs. Make sure rubber washer is mounted to the exterior of the skin (see Figure 4).
- 2.13 Apply a small, smooth fillet with RTV sealant around the periphery of the antenna base to seal out moisture.
- 2.14 Connect new ELT coaxial cable (from kit) to ME406 ELT and 110-773 Antenna assembly. Refer to the ARTEX documentation Section "Connect RF coaxial cable" for details.
- 2.15 Connect Battery(s).
- 2.16 Turn master switch – ON.
- 2.17 Check and verify ELT monitoring system, per ARTEX ME406 documentation.
- 2.18 Install LH and RH Tailcone access panels.
- 2.19 Make Log book entry for installation of new ELT.
- 2.20 Register new ELT with the appropriate flight authority in accordance to the ARTEX ME406 Manual.

WARRANTY: This modification is not warranty reimbursable.

REFERENCE DATA: Refer to Mooney Airplane Company Service Manuals (applicable A/C).
ARTEX - Operation, Installation and Maintenance Manual 570-1600 Rev G or Later FAA Approved revision, available at www.artex.net/support-resources/documents

NOTE:

The ARTEX ME406 ELT in this kit is programmed for US registration aircraft; other countries doing this installation must re-program the ELT for that country.

PARTS LIST: Retrofit Kits ARTEX ME406 Installation and ME406MHz Antenna Installation

<u>Item</u>	<u>P/N</u>	<u>Description</u>	<u>QTY</u>
1.	940181-501	RETROFIT KIT - ARTEX ELT ME406 INSTALLATION	1
.....	455-6605	ME406 System	1
.....	453-1101	Module Interface	1
.....	T50R9M4	Cable Tie	3
.....	155020U	Fuse holder	1
.....	313.250	3 AG-.25A Slow Blow Fuse	1
.....	TZ7591819325TTZ	Cable (5 Cond Shielded)	19'
.....	810517-1	Doubler	1
.....	940180	Drawing, ELT Antenna Installation	1
2.	940180-501	ANTENNA INSTALLATION - 406MHz (see NOTES below)	1
.....	810517-1	Doubler	1
.....	110-773	Antenna Assembly	1
.....	CR3213-4-1	Rivet (Cherry)	3
.....	MS20426AD3	Rivet	5

NOTE:

When ordering Antenna Kit, specify if Antenna is going to be mounted on Exterior or inside Dorsal Fin.

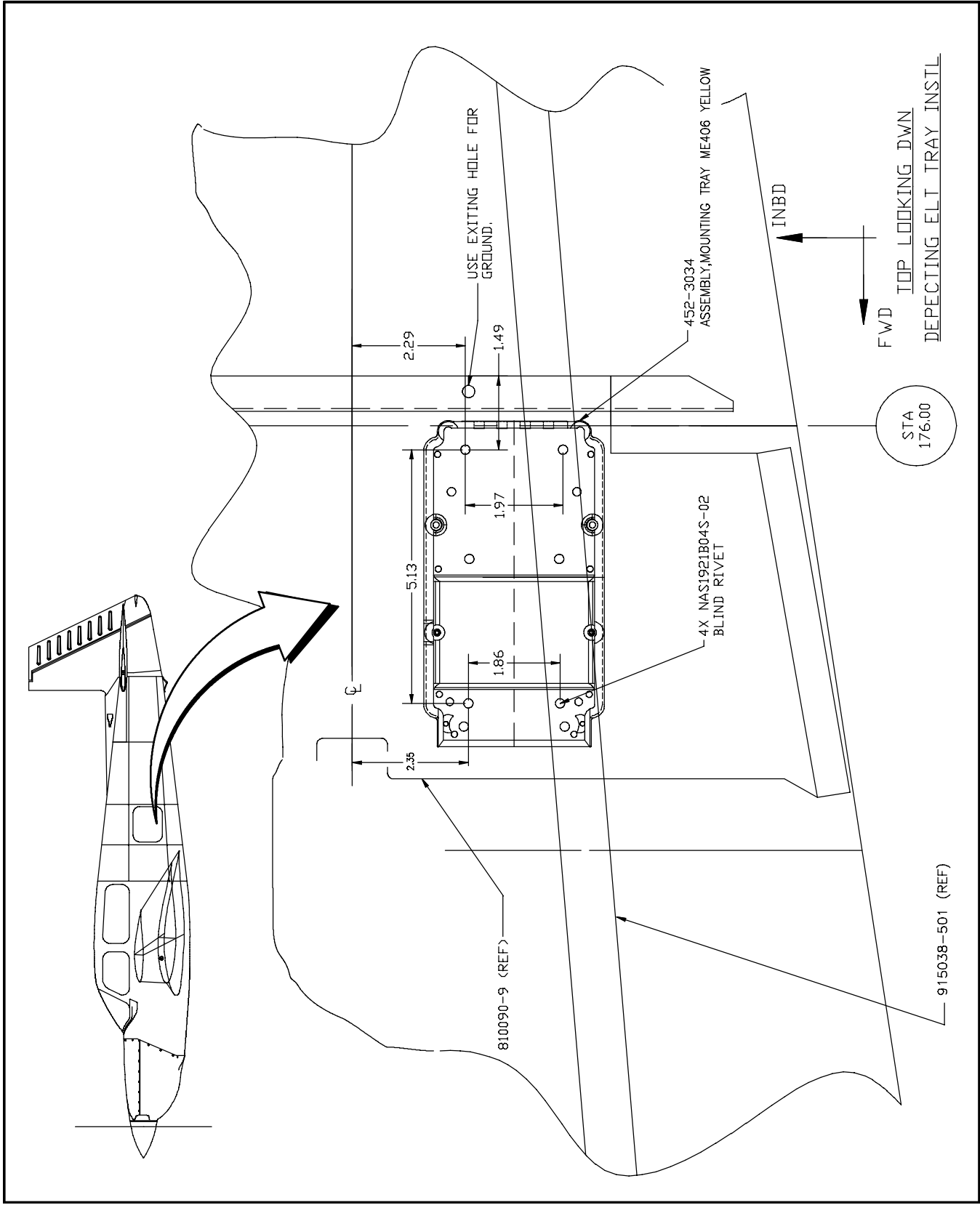


FIGURE 1 - ELT TRAY INSTALLATION - ME406MHz

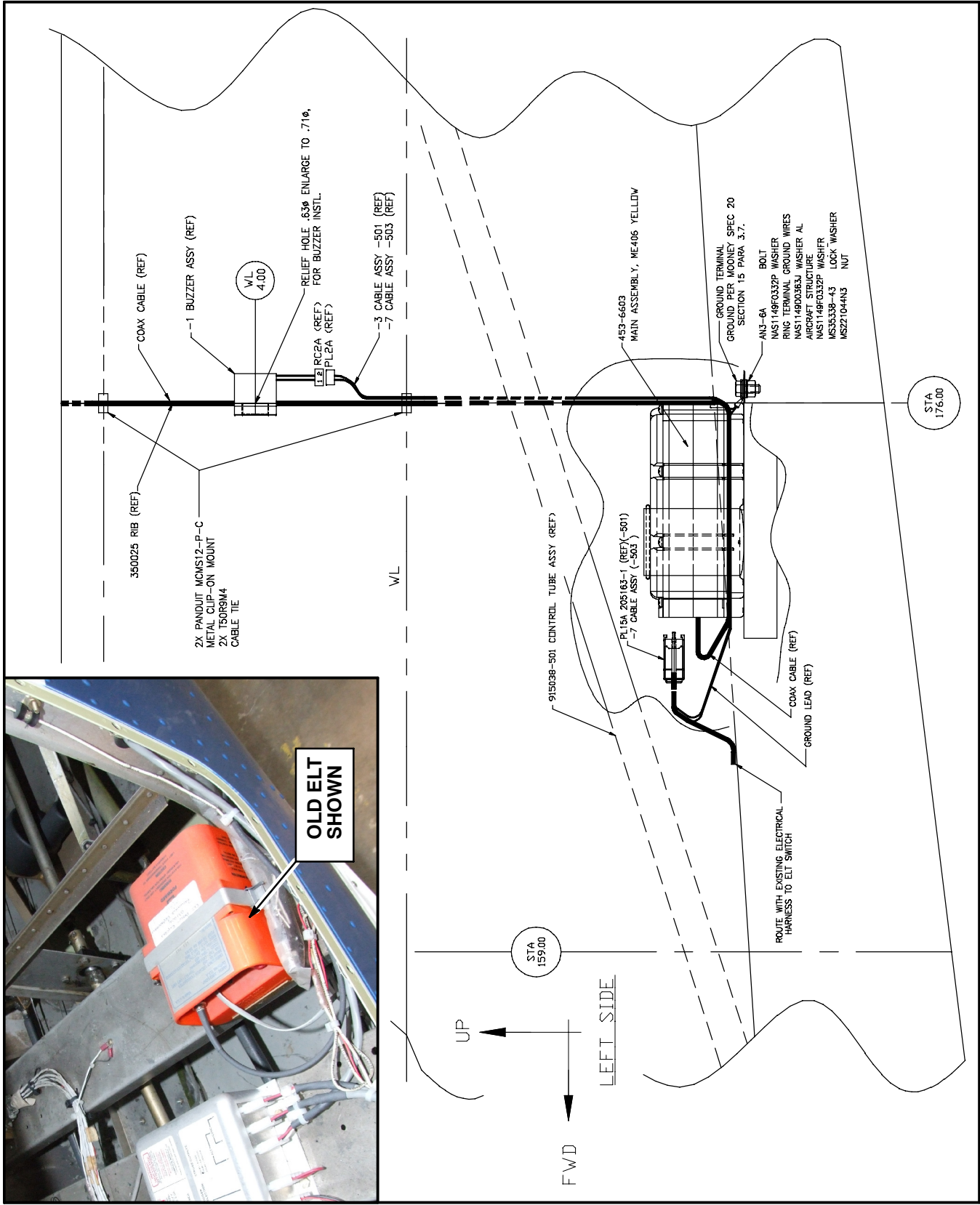


FIGURE 2 - ELT INSTALLATION - ME406MHz

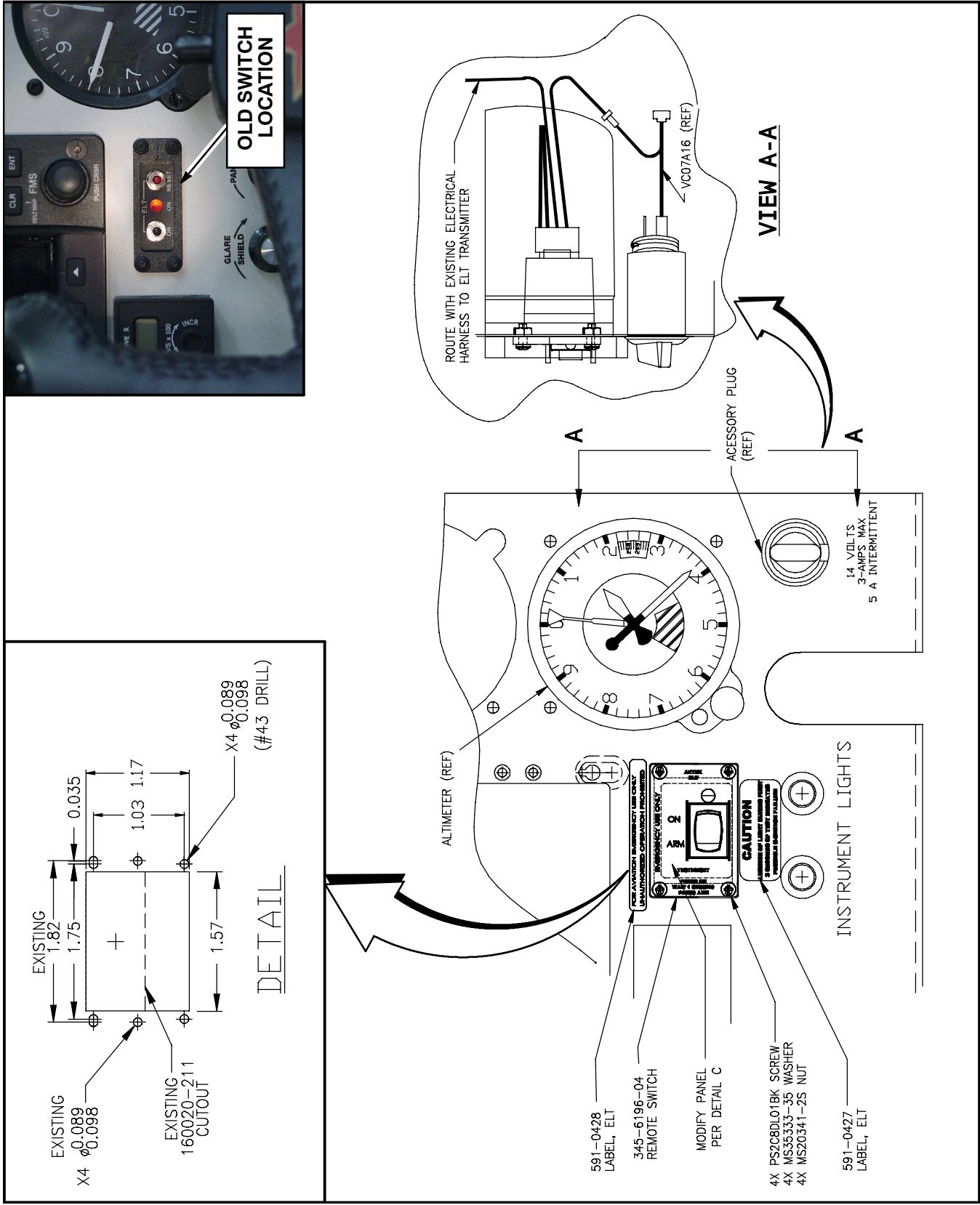
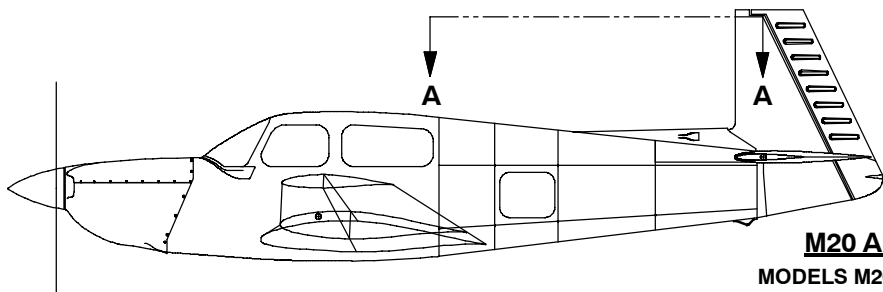


FIGURE 3 - ELT REMOTE SWITCH INSTALLATION - ME406MHZ



M20 AIRFRAME (M20K SHOWN)

MODELS M20J, L, M, R, S, AND TN ARE SIMILAR
 MODELS M20, A, B, C, D, E, F, G AND SOME J HAVE
 DIFFERENT OR NO DORSAL FIN. LOCATE 810517-1
 DOUBLER TO LOCATION SHOWN ON THIS DRAWING

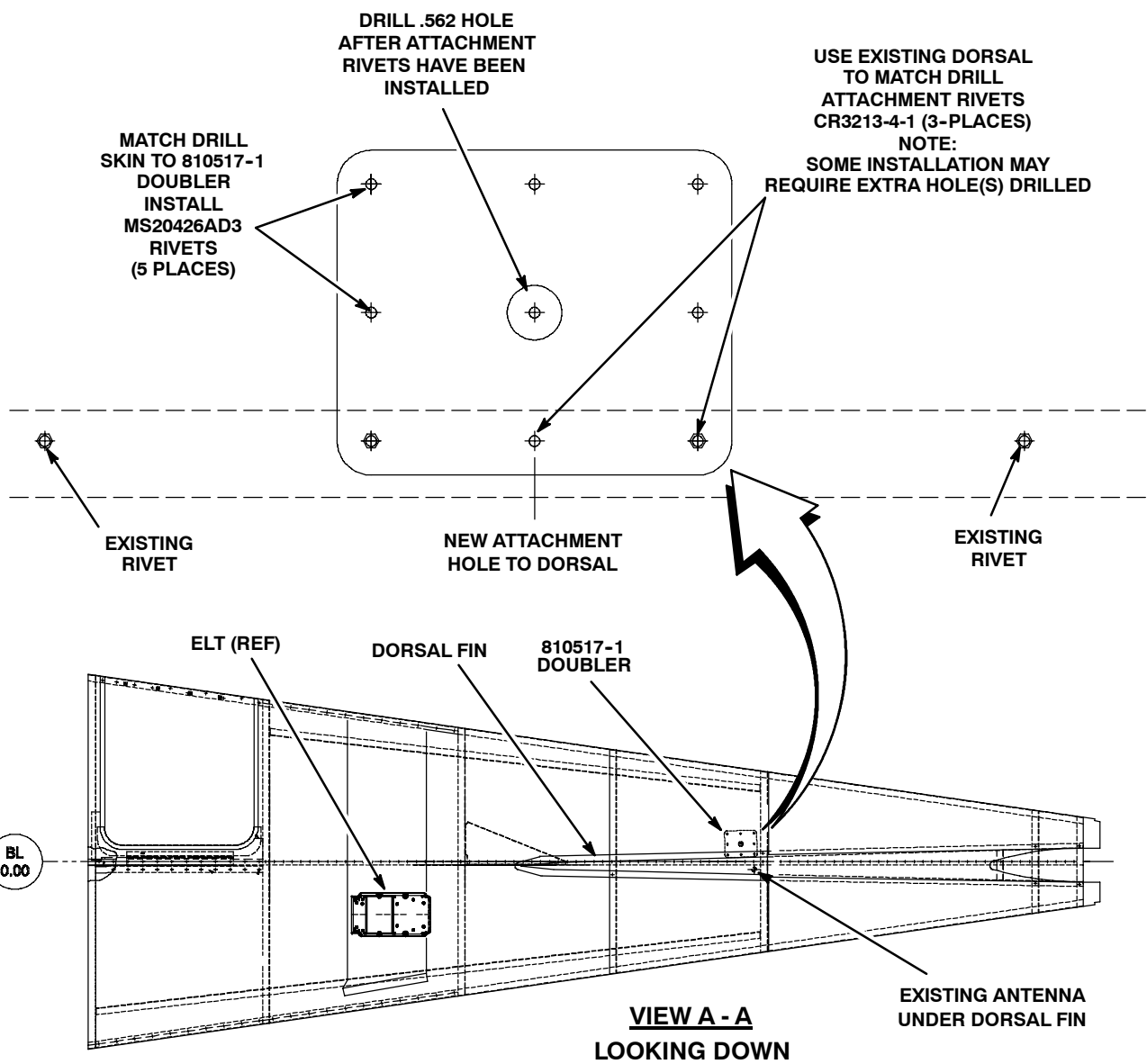


FIGURE 4 - 810517-1 DOUBLER INSTALLATION - 406MHZ

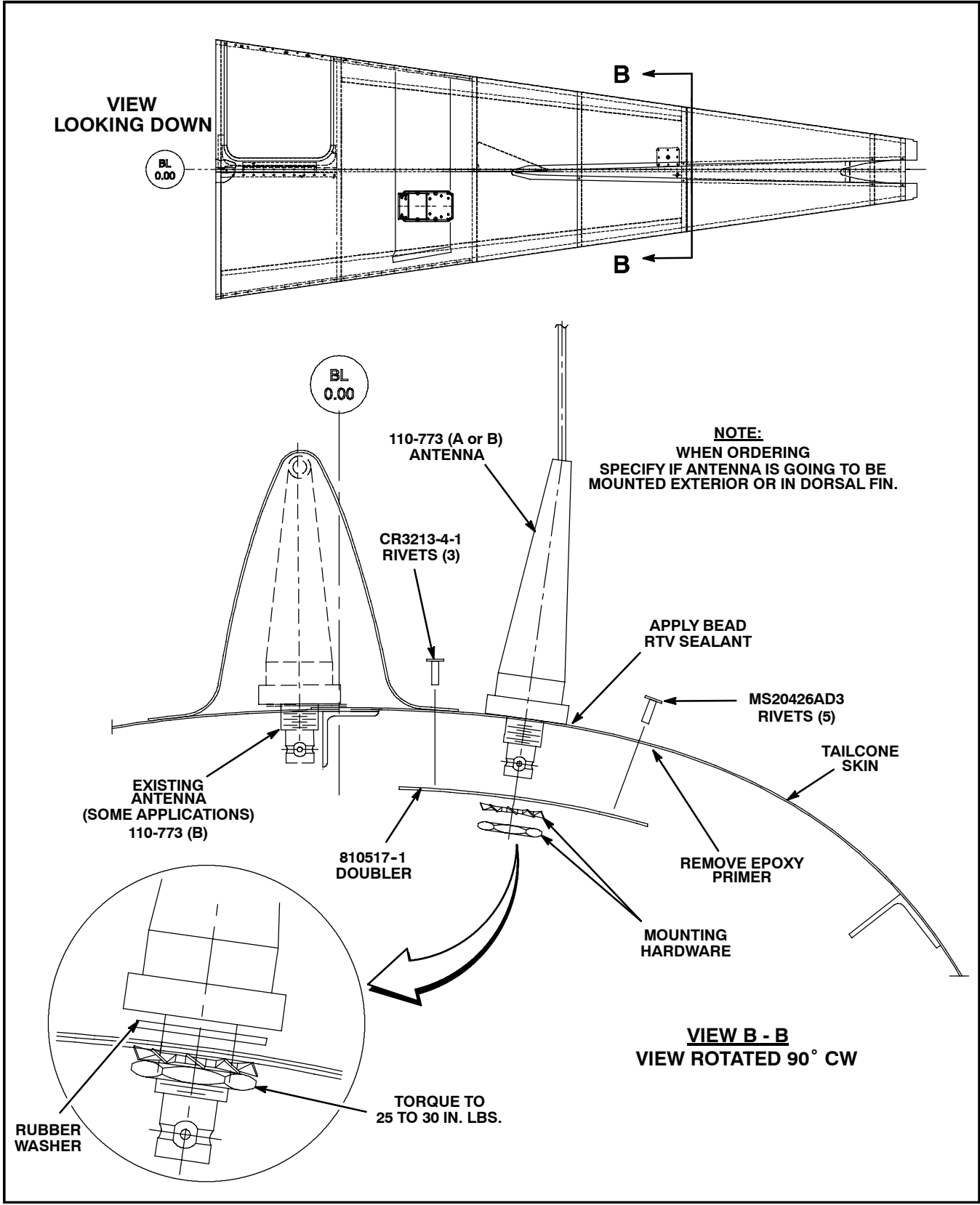


FIGURE 5 - ANTENNA INSTALLATION - 406MHZ