MOONEY AIRCRAFT CORPORATION

SERVICE BULLETIN

NUMBER: M20-222B

BOX 72 • KERRVILLE, TEXAS 78028

THIS BULLETIN IS FAA APPROVED

DATE: 10-22-80

Supersedes M20-222 dated 4-21-80,
& M20-222A dated 5-27-80

SUBJECT: INSTALLATION OF INLINE FUEL FILTER BETWEEN DUKES AUXILIARY FUEL PUMP & ENGINE DRIVEN PUMP

MODELS/ SERIAL NOS. AFFECTED:

M20E S/N 101 and on
M20F S/N 660002 and on
M20J S/N 24-0002 thru 24-1016

The following chart lists aircraft affected and fuel system installation installed on aircraft.

Installation Part No.	Model	Effectivity
	GROUP I	
610034-1	M20E	101 thru 263
610034-503	M20E	264 thru 399, 401 thru 469
	GROUP II	
610034-507	M20E	400, 470 thru 665
610034-511	M20E	666 thru 746
610034-513	M20E	747 thru 1308, 670001 thru 700061, 21-0001 thru 21-0060, 21-1161 thru 21-1180
610152-1	M20F	660002 thru 680206
610152-501	M20F	690001 thru 700070 22-0001 thru 22-0078 22-1179 thru 22-1439
	GROUP III	
610034-523	M20E	21-1181 & on
610152-503	M20J	24-0002 thru 24-0083, 24-0085 thru 24-0377 *24-0591 thru 24-0610, *24-0612 thru 24-0633, *24-0635 thru 24-0640
610152-505	M20J	24-0378 thru 24-0553 and 24-0084
610152-507	M20J	24-0554 thru 24-1016

*If equipped with Weldon fuel pumps, do not need to comply.

M20-222A, Page 1 REVISED ONLY, 6-28-80
M20-222B, Pages 1, 2 & 3 REVISED ONLY, 10-22-80

TIME OF COMPLIANCE: MANDATORY within the next 25 flight hours.

INTRODUCTION: Reports of foreign material in the engine driven fuel pump have been received from the field. Some particles have been traced to internal deterioration of the auxiliary fuel boost pump, Dukes P/N 4140-00-19A. The subject inline filter, installed per this Service Bulletin, will eliminate foreign material from entering the engine driven pump mechanism and allow the material to be removed from the system during inspection periods. A/C which have later improved models of Dukes boost pumps installed will not require this filter; however, the filter may be left in the system if desired.

INSTRUCTIONS:

1. Aircraft listed in Group III with Dukes 4140-00-19A auxiliary fuel pump: Shorten existing fuel line approx. 5.1 inches forward of boost pump to accommodate fuel filter. Replace hardware connecting fuel line to boost pump with Service Bulletin Kit M20-222-1 as shown in Figure #1. (Flare and bends to be per AC 43.13-1A, Chapter 14, Section 2.)

   NOTE: Maintain a minimum of 1/8 inch between fuel system lines and any moving brake and steering mechanisms. The shortened fuel line may be reformed to insure proper clearance.

2. Aircraft listed in Group II with Dukes 4140-00-19A auxiliary fuel pump: Modify aircraft by installation of kit per S.B. M20-187 except shorten 610231-503 fuel line approximately 5.1 inches to accommodate M20-222-1 filter kit. (Replace 610076 elbow, AN6289-6D nut, AN6291-6 seal and MS29512-6 O-ring with 90° elbow and inline fuel filter). See Figure #2 for S.B. M20-222-1 kit installation. (Flare and bends to be per AC 43.13-1A, Chapter 14, Section 2).

   NOTE: Maintain a minimum of 1/8 inch between fuel system and any moving brake and steering mechanisms. The shortened fuel line may be reformed to insure proper clearance.

3. Aircraft listed in Group I with Dukes 4140-00-19A auxiliary fuel pump located on firewall: Relocate existing auxiliary fuel pump beneath floorboard as shown in Figures 3, 4, 5 using M20-222-2 kit. Cut terminals from original electric wire, both ends. Build up a wire with equivalent terminals and connect to auxiliary pump toggle switch on instrument panel. Route wire from toggle switch down side panel to floorboard.

Instructions Cont'd.

Drill hole in floorboard; (CAUTION: Do not drill thru tubular structure or other lines or cables); install AN931-3-5 grommet in hole and run wire through. Route clear of any structure or moving parts and secure to auxiliary pump with equivalent terminals as original. Connect ground wire to auxiliary pump and structure. Use PVC tubing to protect wires.

On some aircraft the inboard brake master cylinder may require 180° rotation to provide adequate clearance with the new auxiliary pump lines. Substitution of equivalent fittings on auxiliary pump and filter installation, (45° vs. 90° or vice-versa) is acceptable if required for adequate clearance.

NOTE: Maintain a minimum of 1/8 inch between fuel system and any moving brake and steering mechanisms. The shortened fuel line may be reformed to insure proper clearance. (Ref. AC 43.13-1A, Chapter 14, Section 2).

4. Complete enclosed card when Service Bulletin has been complied with and mail to Mooney Aircraft Corporation. Enter compliance note in Aircraft Log Book when Service Bulletin effort has been accomplished.

PARTS LIST: Kit No. M20-222-1 (Effective Group II & III Aircraft)

Quantity	Part Number	Description
1 ea.	00736ASSYR9W1822	Engine Fuel Filter
1 ea.	9515 x 6 x 6	90° Elbow

Kit No. M20-222-2 (Effective Group I Aircraft)

Quantity	Part Number	Description
1 ea.	00736ASSYR9W1822	Fuel Filter
1 ea.	9515 x 6 x 6	90° Elbow
1 ea.	340052-21	Doubler
1 ea.	610056	Bracket
4 ea.	AN960-10	Washer
4 ea.	AN501AC10-8	Screw
1 ea.	610231-503	Fuel Line
1 ea.	AN937-6	Elbow
1 ea.	AN960-916	Washer
1 ea.	AN924-6	Nut
1 ea.	610231-501	Fuel Line
1 ea.	2140-93	Fitting (Dukes)
1 ea.	310213-1	Exhaust Cavity
1 ea.	AN931-3-5	Grommet
1 pc.	PVC-105	Tube, 3/8"I.D. x 6" length

REFERENCE DATA: Service Bulletin M20-187 dated 8-2-74.

FIGURES/TABLES: See attached sheets.

FIGURE #1

KIT NO M20-222-1 TO BE INSTALLED, AS SHOWN BELOW RIGHT, FOR 610152-1, -501, -503, -505-507 & 610034-523.

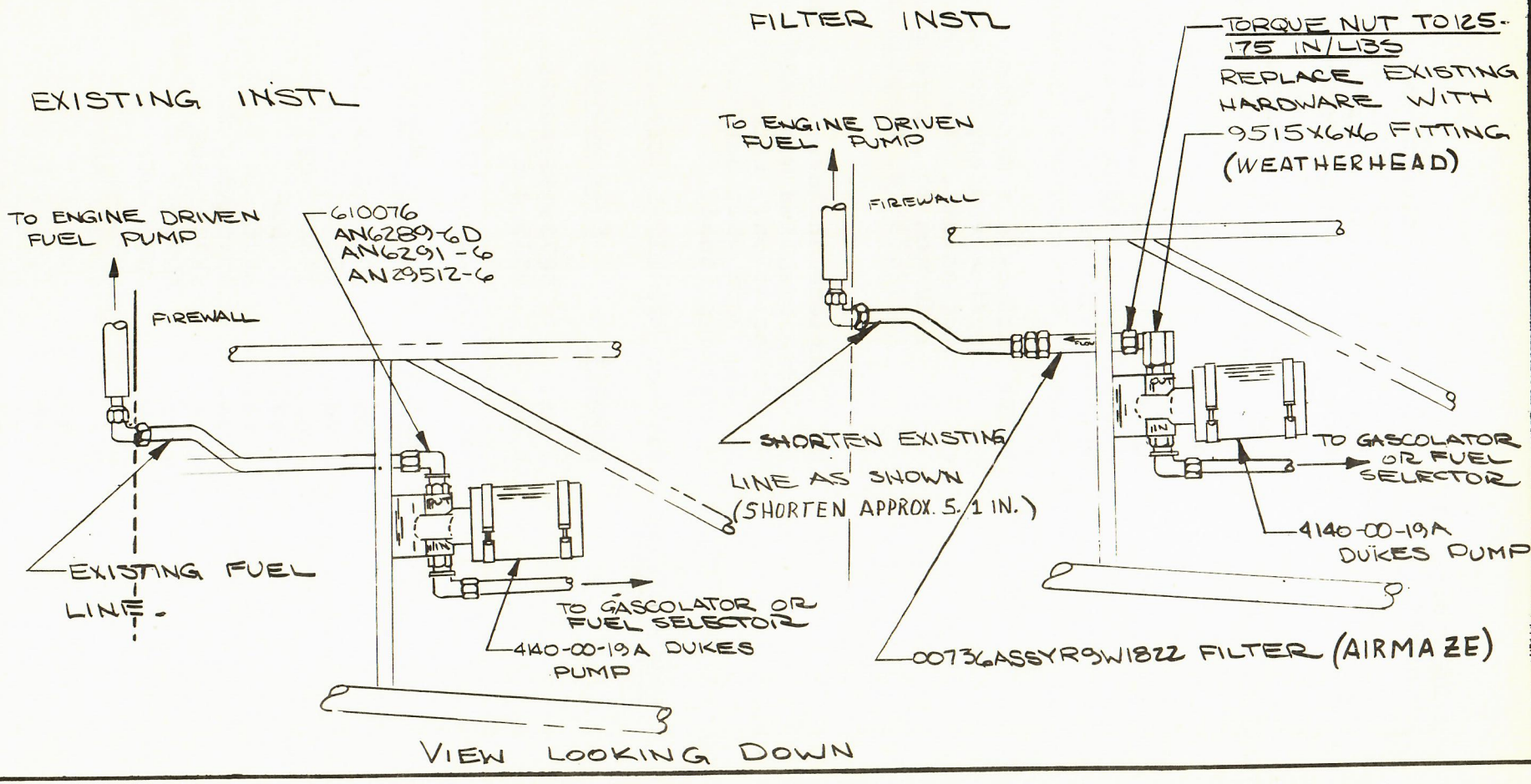
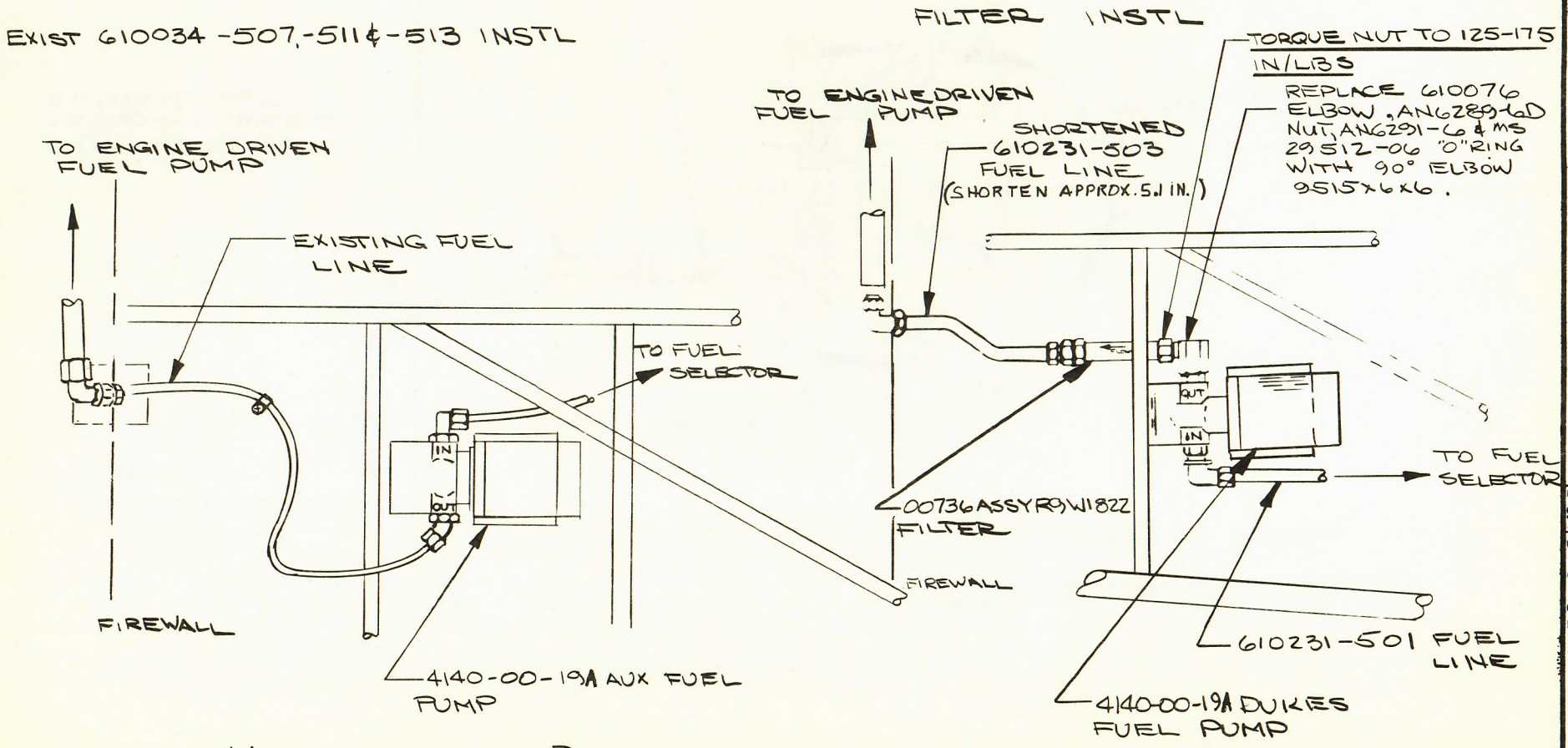


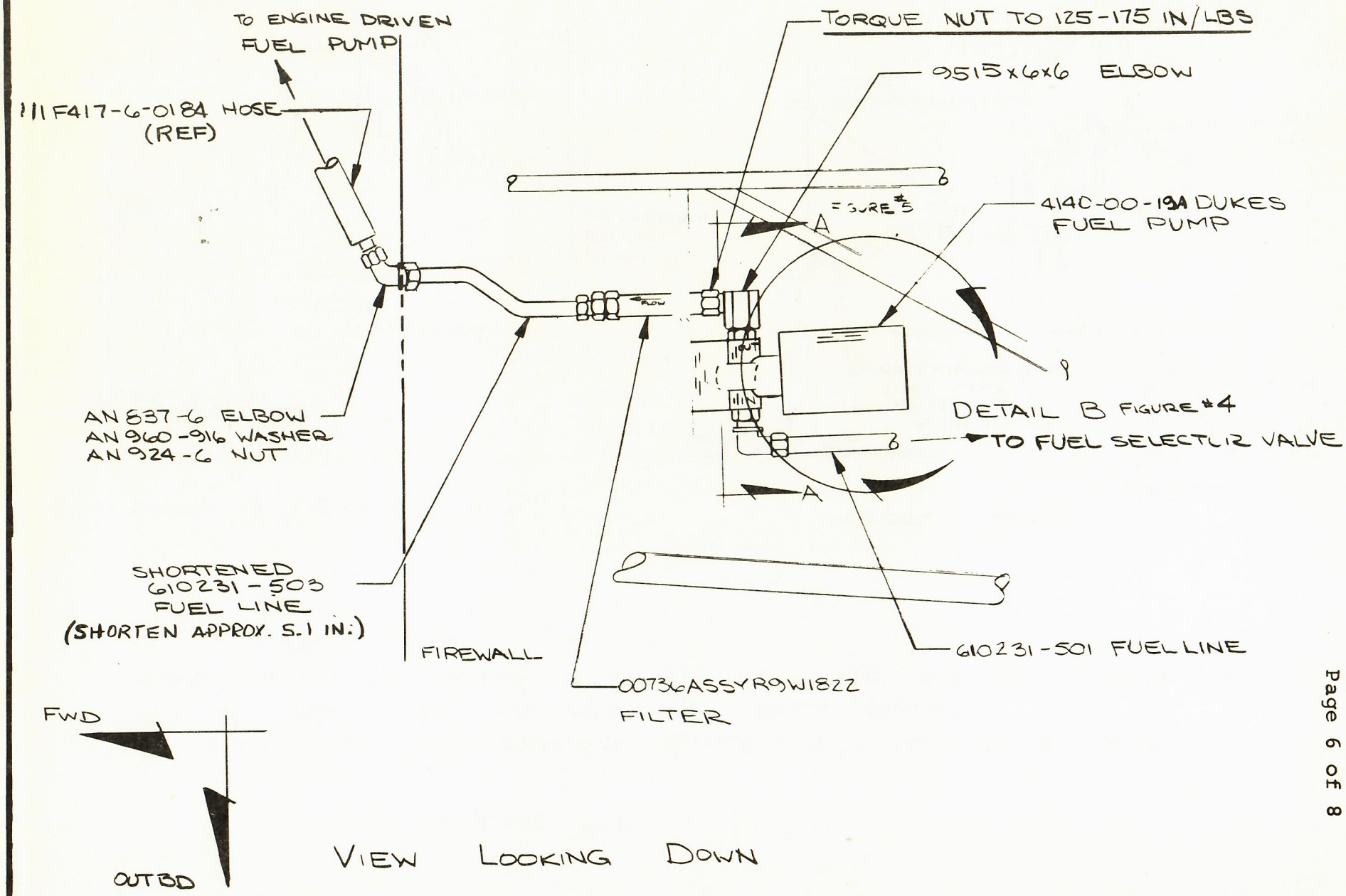
FIGURE # 2

REWORK INSTL TO SERVICE BULLETIN # M20-187 & INSTALL KIT # M20-222-1 AS SHOWN BELOW, RIGHT.
NOTE! AUX FUEL PUMP MUST BE ROTATED 180° TO ACCOMMODATE NEW FUEL LINES.



VIEW LOOKING DOWN

FIGURE # 3


TO ENGINE DRIVEN FUEL PUMP
111F417-6-0184 HOSE (REF)
TORQUE NUT TO 125-175 IN/LBS
9515x6x6 ELBOW
FIGURE #5
A
4140-00-19A DUKES FUEL PUMP
AN 837-6 ELBOW
AN 960-916 WASHER
AN 924-6 NUT
DETAIL B FIGURE #4
TO FUEL SELECTOR VALVE
A
SHORTENED 610231-503 FUEL LINE
(SHORTEN APPROX. 5.1 IN.)
FIREWALL
610231-501 FUEL LINE
00736ASSYR9W1822 FILTER
FWD
OUTBD
VIEW LOOKING DOWN

DETAIL B FIGURE #4

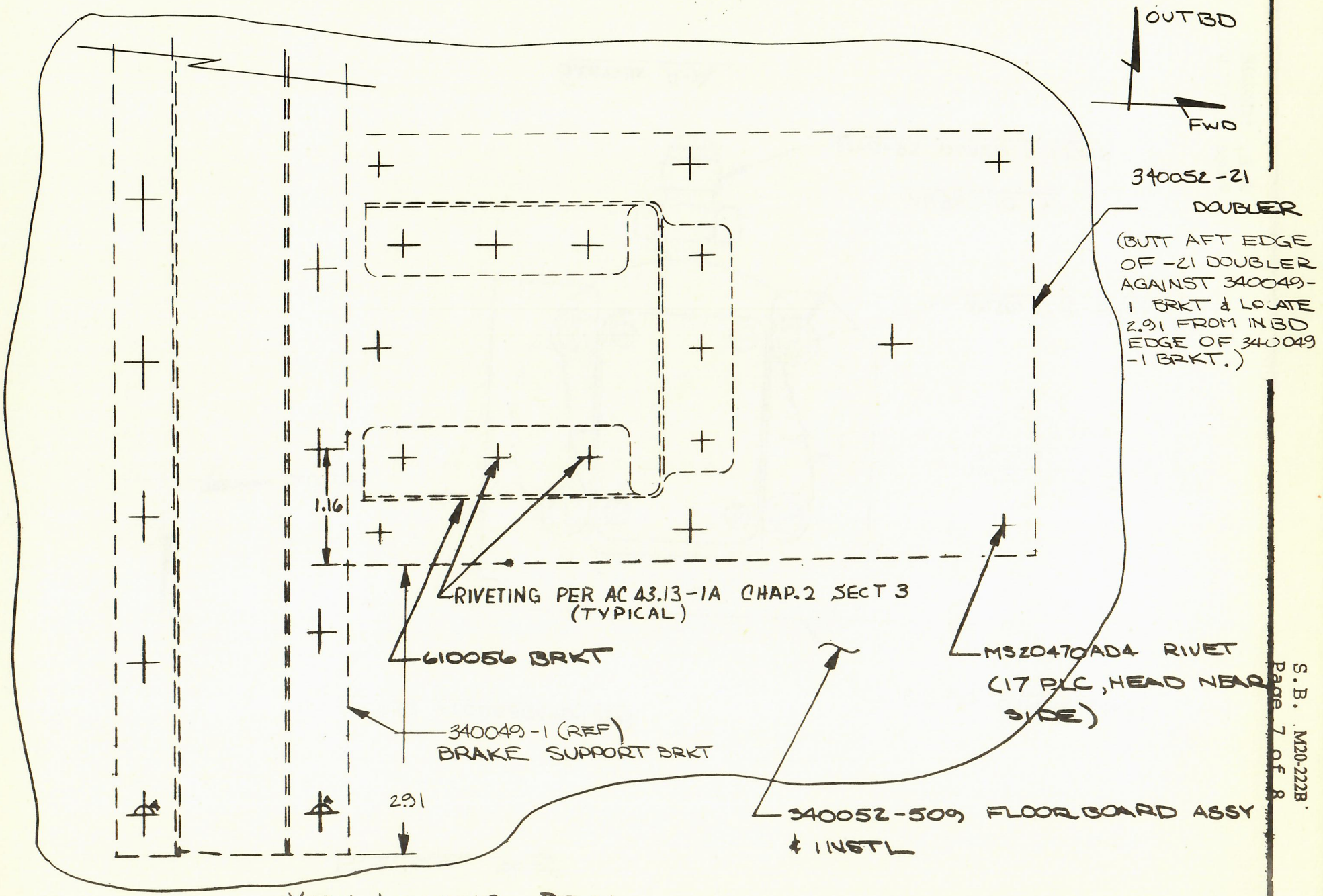
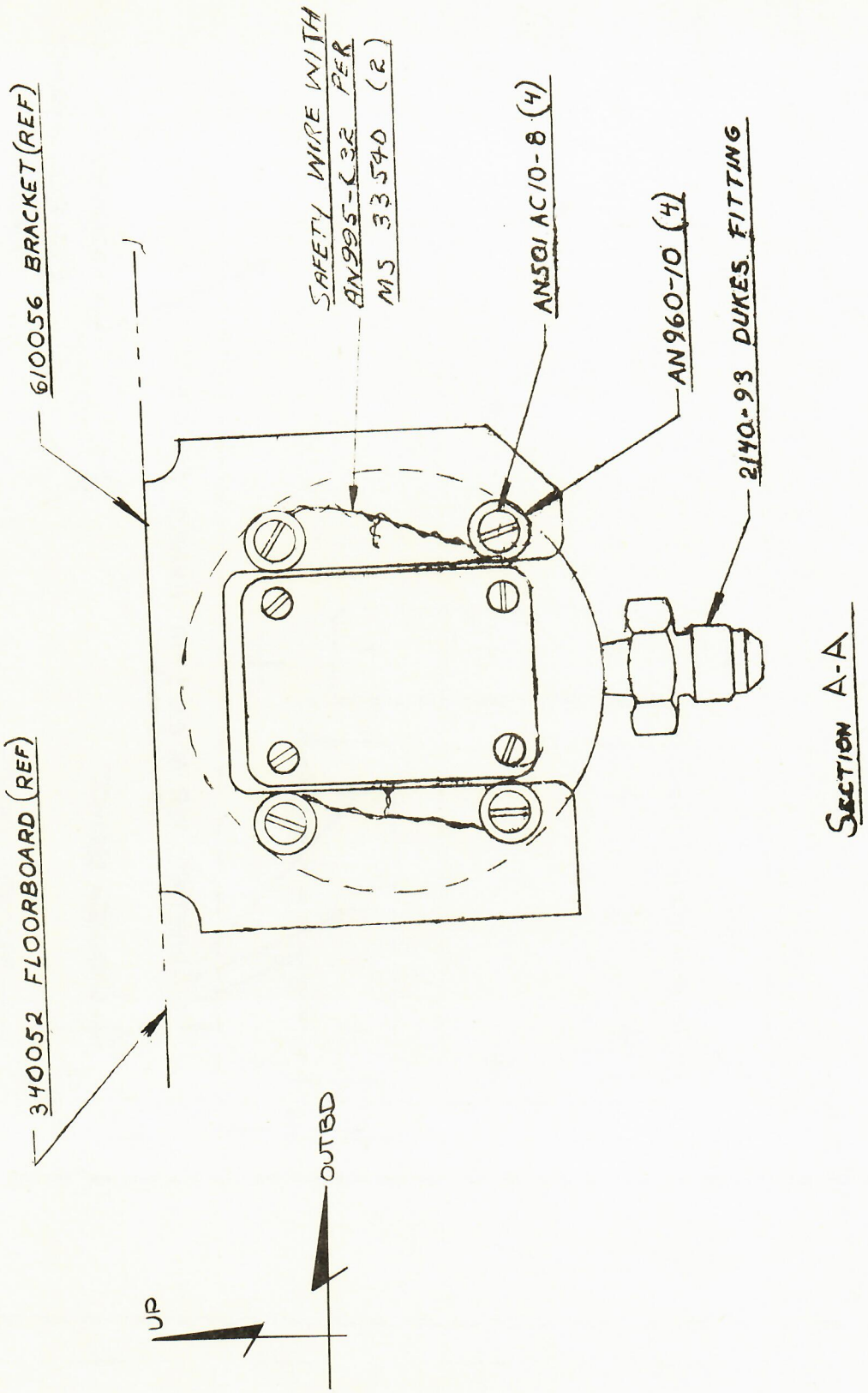


FIGURE #5



SECTION A-A