

DATE: 10-22-80

Supersedes M20-222 dated 4-21-80,  
& M20-222A dated 5-27-80SUBJECT: INSTALLATION OF INLINE FUEL FILTER BETWEEN  
DUKES AUXILIARY FUEL PUMP & ENGINE DRIVEN PUMPMODELS/  
SERIAL NOS.  
AFFECTED: M20E S/N 101 and on  
M20F S/N 660002 and on  
M20J S/N 24-0002 thru 24-1016The following chart lists aircraft affected and  
fuel system installation installed on aircraft.

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

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

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 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)

| <u>Quantity</u> | <u>Part Number</u> | <u>Description</u> |
|-----------------|--------------------|--------------------|
| 1 ea.           | 00736ASSYR9W1822   | Engine Fuel Filter |
| 1 ea.           | 9515 x 6 x 6       | 90° Elbow          |

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

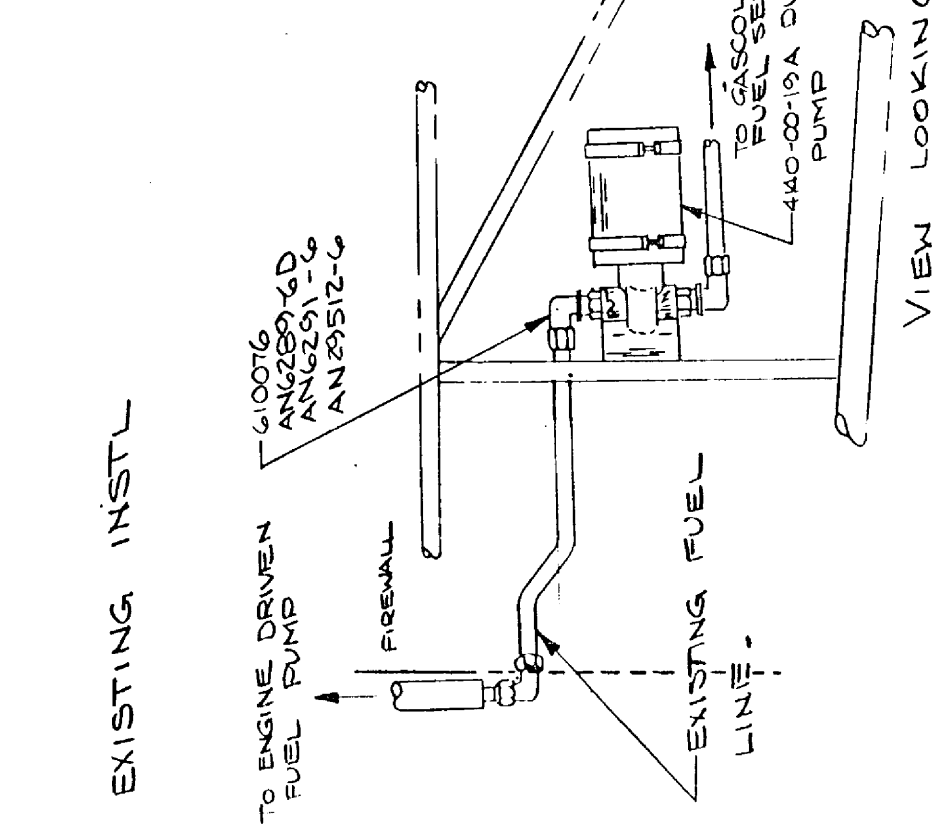
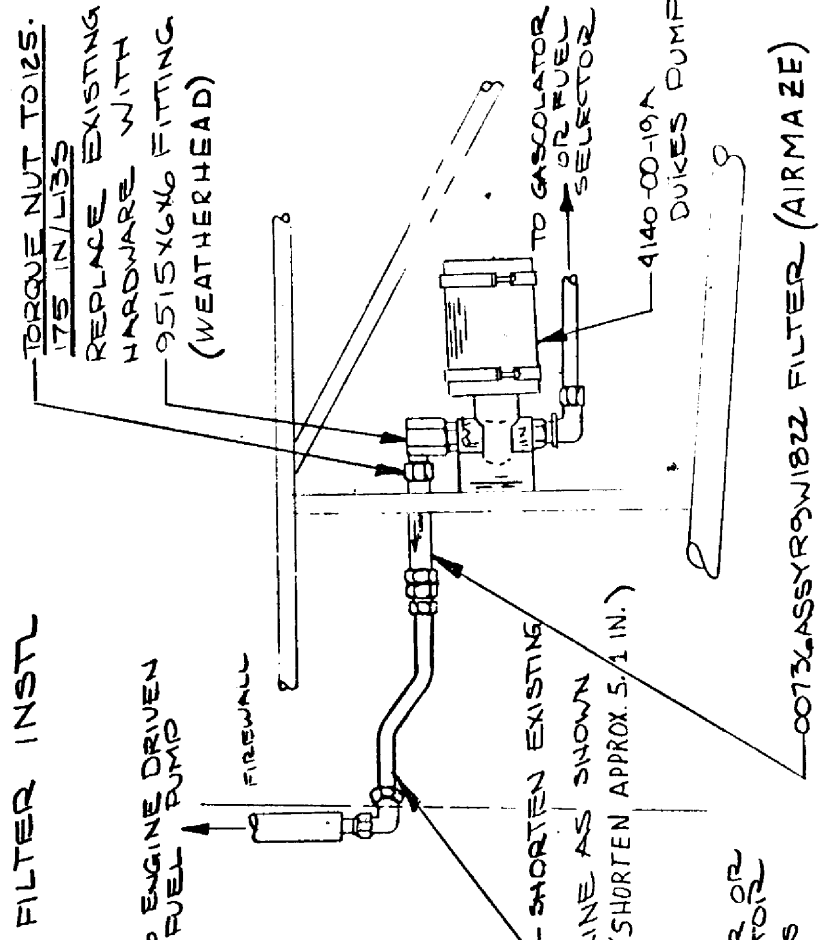
| <u>Quantity</u> | <u>Part Number</u> | <u>Description</u>          |
|-----------------|--------------------|-----------------------------|
| 1 ea.           | 00736ASSYR9W1822   | Fuel Filter                 |
| 1 ea.           | 9515 x 6 x 6       | 90° Elbow                   |
| 1 ea.           | 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

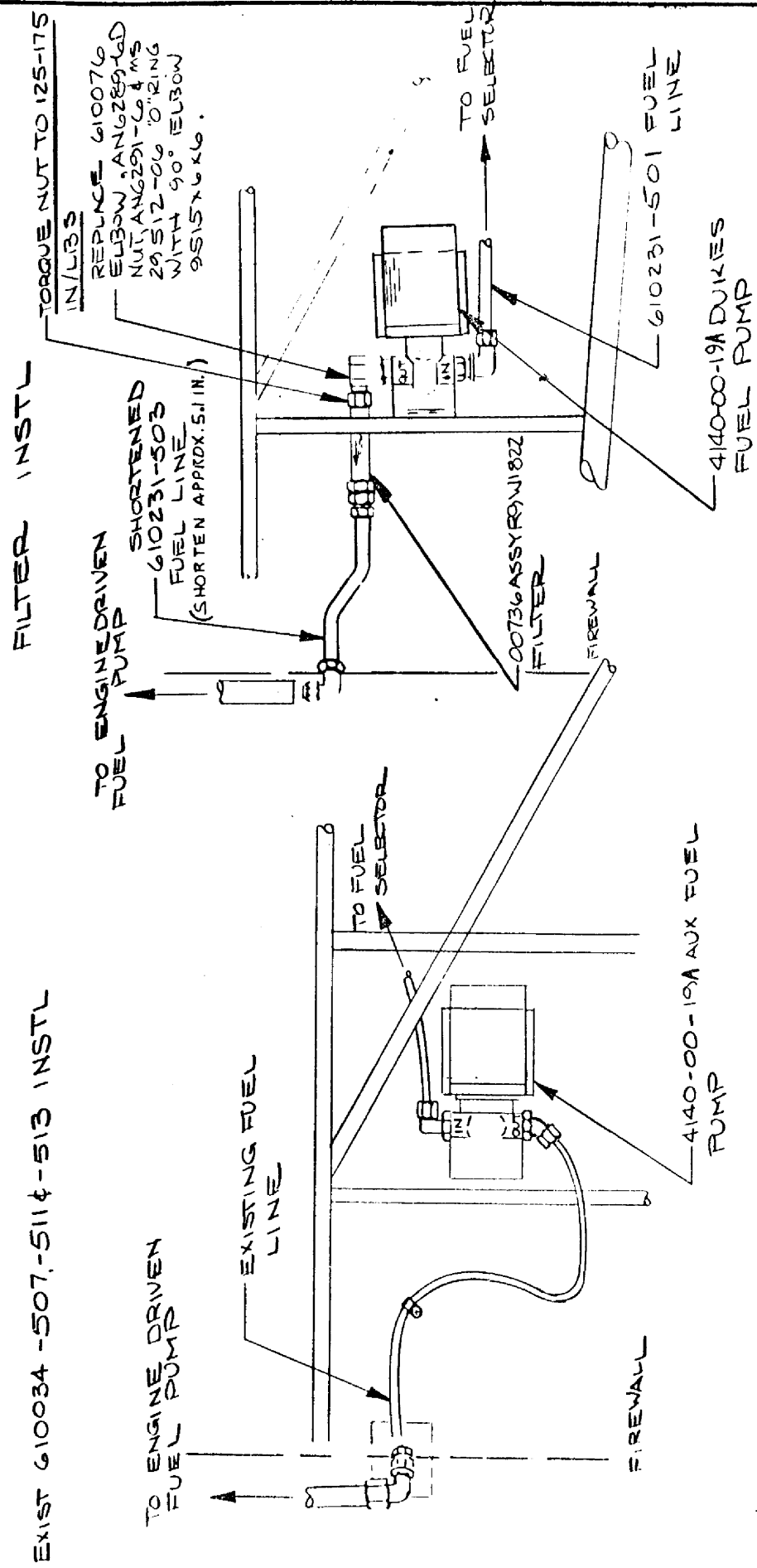
KIT NO M20-222 -1 TO BE INSTALLED, AS SHOWN BELOW RIGHT,  
FOR 610152-1, -501, -503, -505-507 & 610034-523.



VIEW LOOKING DOWN

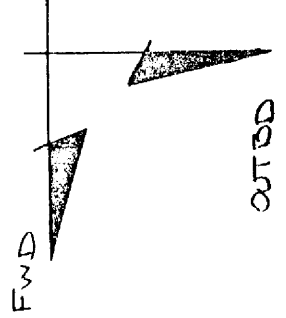
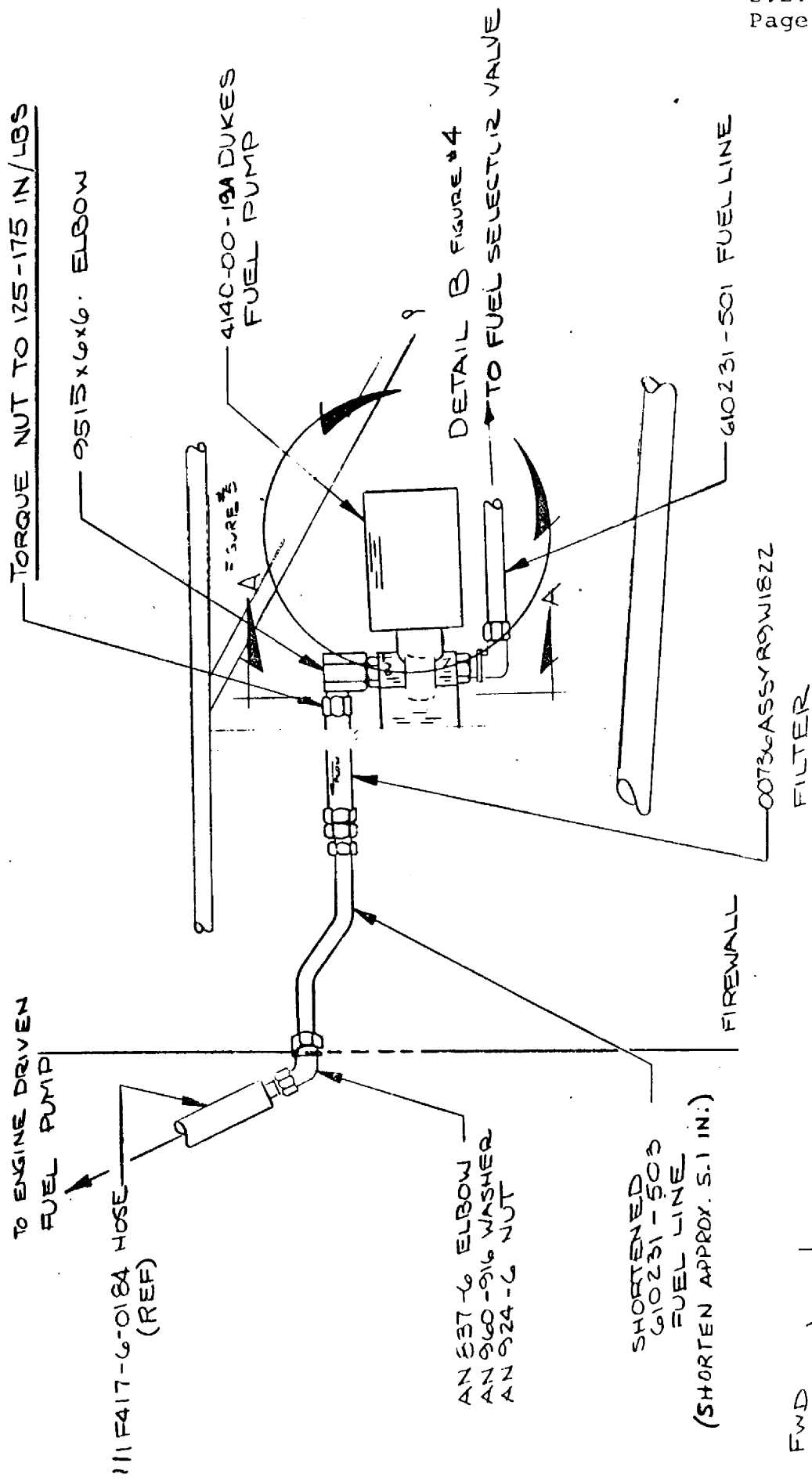
FIGURE # 2

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.



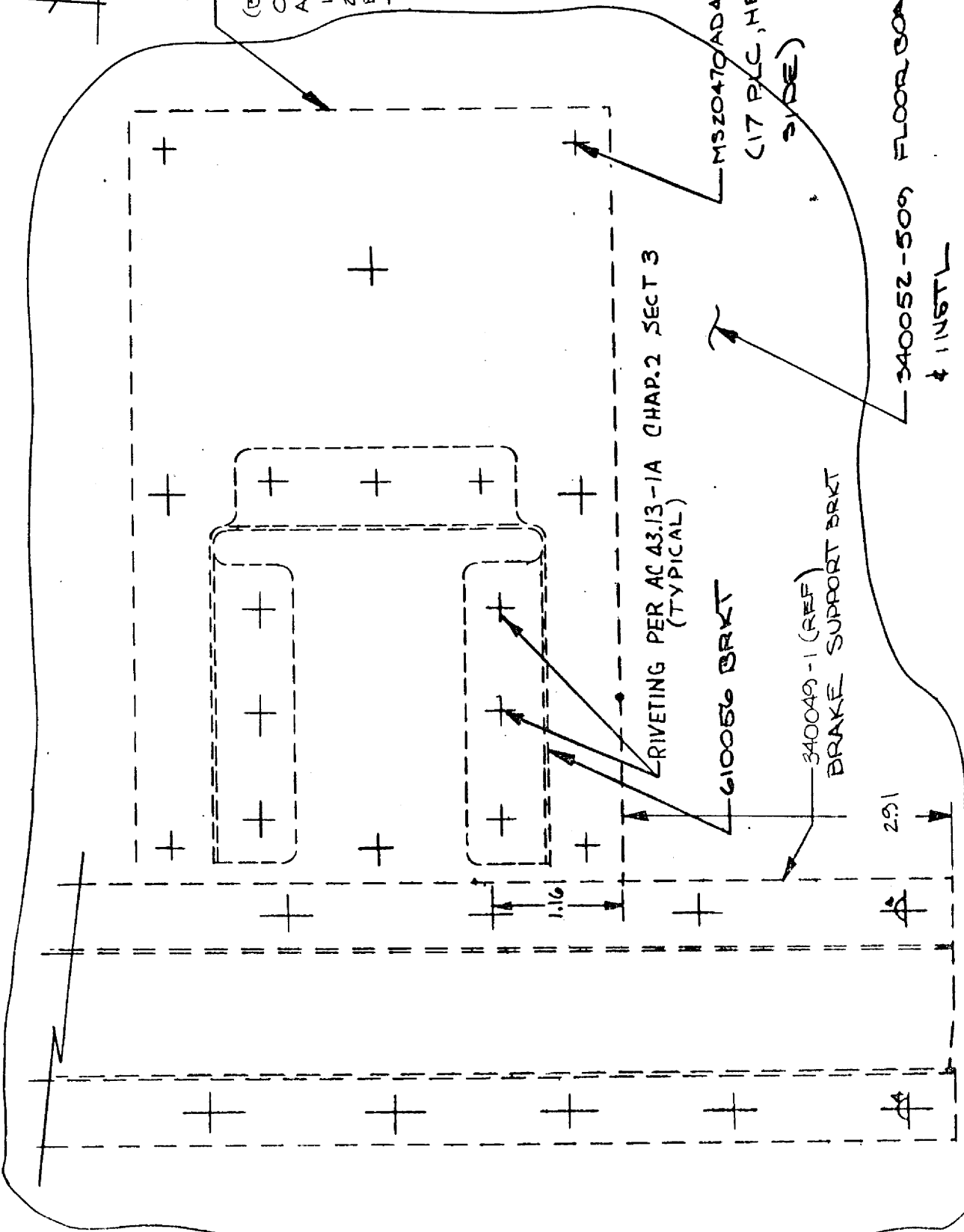
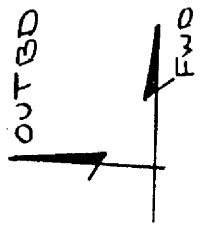
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FIGURE # 3



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DETAIL B FIGURE #4



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FIGURE #5

