

## ASSEMBLY INSTRUCTIONS FOR FORCED DRAFT, BELT DRIVE UNITS

Customer is to provide the foundation or supports, with anchor or setting bolts. Information for base plates and bolt requirements is shown on the General Arrangement drawings .

1. Review General Arrangement drawings, Assembly drawings, and Parts List.
2. Identify and sort materials per assemblies.
3. An assembly crew of 4 to 5 is recommended for substructure and walkways. For units shipped unassembled, a second crew of 4 to 5 is recommended for tube bundles, plenums, mechanicals, louvers, and steam coils, if required.
4. Substructure can be erected as the basic unit is being assembled.

### A. SUBSTRUCTURE

1. Place columns on anchor bolts or support beams (loose bolted). Shims, by others, may be required for proper elevation.
2. Install cross bracing (loose bolted).
3. Tighten all bolts on substructure.
4. Install assembled unit to substructure. See sections B through F for unit assembly, if required. **For units shipped assembled, these sections are included for reference only.**
5. Install knee braces to columns and side panels.
6. Attach walkway supports and brackets, if required. See Parts List and Assembly drawings.
7. Attach walkway stringers, handrails, and ladders, if required. See Parts List and Assembly drawings.

## B. PLENUM ASSEMBLY

1. Set all bottom panels on a level surface. Install vertical stiffeners, panel supports, and horizontal stiffeners, if required, to side, end, and center panels. Attach side panels, center panels, and tension angles, if required, to bottom panels. Tighten all bolts. See Fig. B1.
2. Install stub columns to both ends of side panels. Lift at each end of side panels, using lifting eyes by others. Install end panels to bottom panels and columns. Install plan bracing, square off the unit, and tighten bolts. See Fig. B2.
3. For assembly completion, lift the unit approximately 5 ft. (1.5 m) with spacer supports by others.
4. Assemble four pieces of fan ring. Assemble fan ring to bottom panels. Attach air seals to bottom panels. See Fig. B3.
5. Attach machinery mount to fan ring. Attach machinery mount hangers to machinery mount and side panels. Attach machinery mount hanger braces, if provided. See Fig. B4.

## C. SHAFT INSTALLATION

1. Attach bottom bearing, with grease connection facing the machinery mount side channel to which remote grease fittings will be installed. Install fan shaft, tapered end up, through the top of fan mount to the bottom bearing. Fan shaft shoulder should rest on bearing race. See Fig. C1.
2. Attach top bearing, with grease connection facing the machinery mount side channel to which remote grease fittings will be installed. Use full dog point set screw in keyway. Make sure set screw does not contact bottom of keyway by backing screw off one full turn after screw touches bottom of keyway. Install flinger by tapping with wood to prevent damage to flinger. See Fig. C2.
3. Align shaft, tighten bearing bolts, and tighten bottom bearing set screws.
4. Install grease lines to fan shaft bearings. See Fig. C3 and "DRIVE ASSEMBLY" section of Parts List for grease line fittings and couplings. Grease bearings per "LUBRICATION INSTRUCTIONS FOR FAN SHAFT BEARINGS".
5. Install fan ring struts. See Fig. C4.

#### D. FAN INSTALLATION

1. Install fan assembly to shaft. See fan brochure.
2. Set radial clearance between the fan blade tip and the fan ring per chart below. See fan brochure for adjustment procedure.

Fan Diameter, D	D 10 ft. (D 3.05 m)	10 ft. < D < 20 ft. (3.05 m < D < 6.1 m)	D 20 ft. (D 6.1 m)
Min. Clearance	3/8" (10 mm)	3/8" (10 mm)	3/8" (10 mm)
Max. Clearance	5/8" (16 mm)	3/4" (19 mm)	1" (25 mm)

3. Set fan blade pitch per the FIN-FAN<sup>®</sup> specification sheet. See fan brochure for blade pitch adjustment procedure.
4. Install AV accessory support, if required. See "FAN ASSEMBLY" section of the Parts List for air line fittings and couplings.

#### E. BELT DRIVE INSTALLATION

1. Attach motor to motor mount. Attach motor mount assembly to machinery mount. Attach motor mount belt guard to motor mount. See Fig. E1 and "MOTOR INSTALLATION AND REMOVAL PROCEDURE".
2. Apply grease ("NEVER-SEEZ" or equivalent) to motor shaft and lower end of fan shaft. Care should be taken to prevent grease from contacting bushing tapered surfaces or bushing bolts. These surfaces should remain ungreased for proper sprocket seating.
3. Install both sprocket bushings (or sheave bushings, as required), with keys, onto shafts and tighten set screws over keys. See Fig. E2. See "DRIVE ASSEMBLY" section of the Parts List to set vertical location of large sprocket bushing.
4. Install small sprocket on motor shaft and hand tighten bushing bolts tight enough to hold in place. Install large sprocket on fan shaft and hold firmly against bushing taper while tightening bushing bolts.
5. Place a straight edge across bottom face of both sprockets and align so that they are parallel with each other  $\pm 1/8"$  (3 mm). Motor may need to be adjusted on the motor mount for alignment. Shimming motor feet may also be needed. Tighten bushing bolts per manufacturer's recommendation and recheck for alignment.
6. Install belts and adjust for tension. See Fig. E3 and "BELT INSTALLATION AND TENSIONING INSTRUCTIONS".
7. Install vibration switch, if required. See vibration switch brochure.

8. Install belt guard and fan guards. See Fig. E4.
9. Install inlet bell. See Fig. E5 and "INLET BELL INSTALLATION FOR FORCED DRAFT UNITS".

#### F. TUBE BUNDLE FRAME INSTALLATION

1. Attach louvers, if required, to tube bundle frame.
2. Attach steam coil and/or tube bundle frame to side and end panels.
3. Attach steam coil and/or tube bundle frame to center panels, if required.

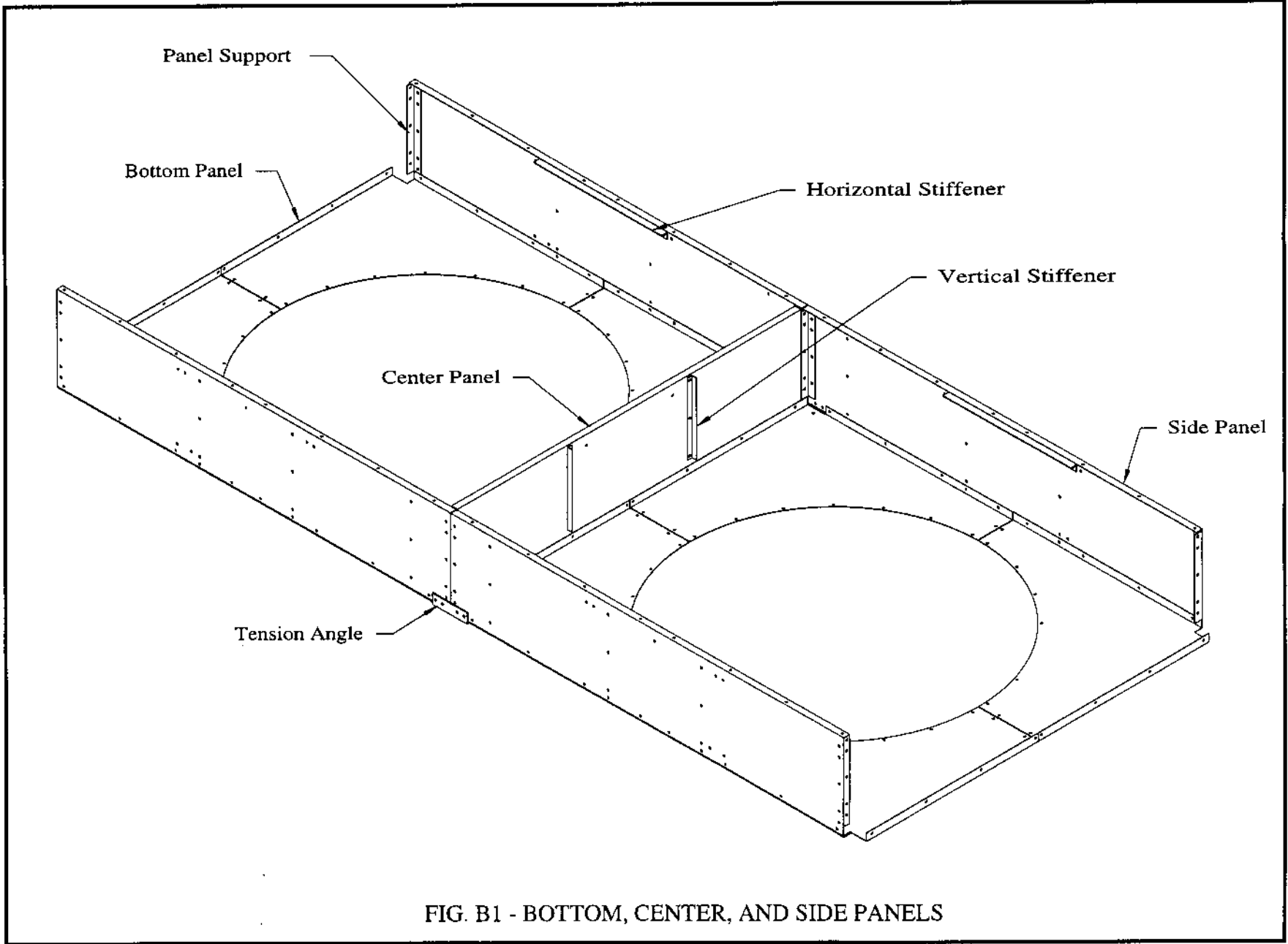


FIG. B1 - BOTTOM, CENTER, AND SIDE PANELS

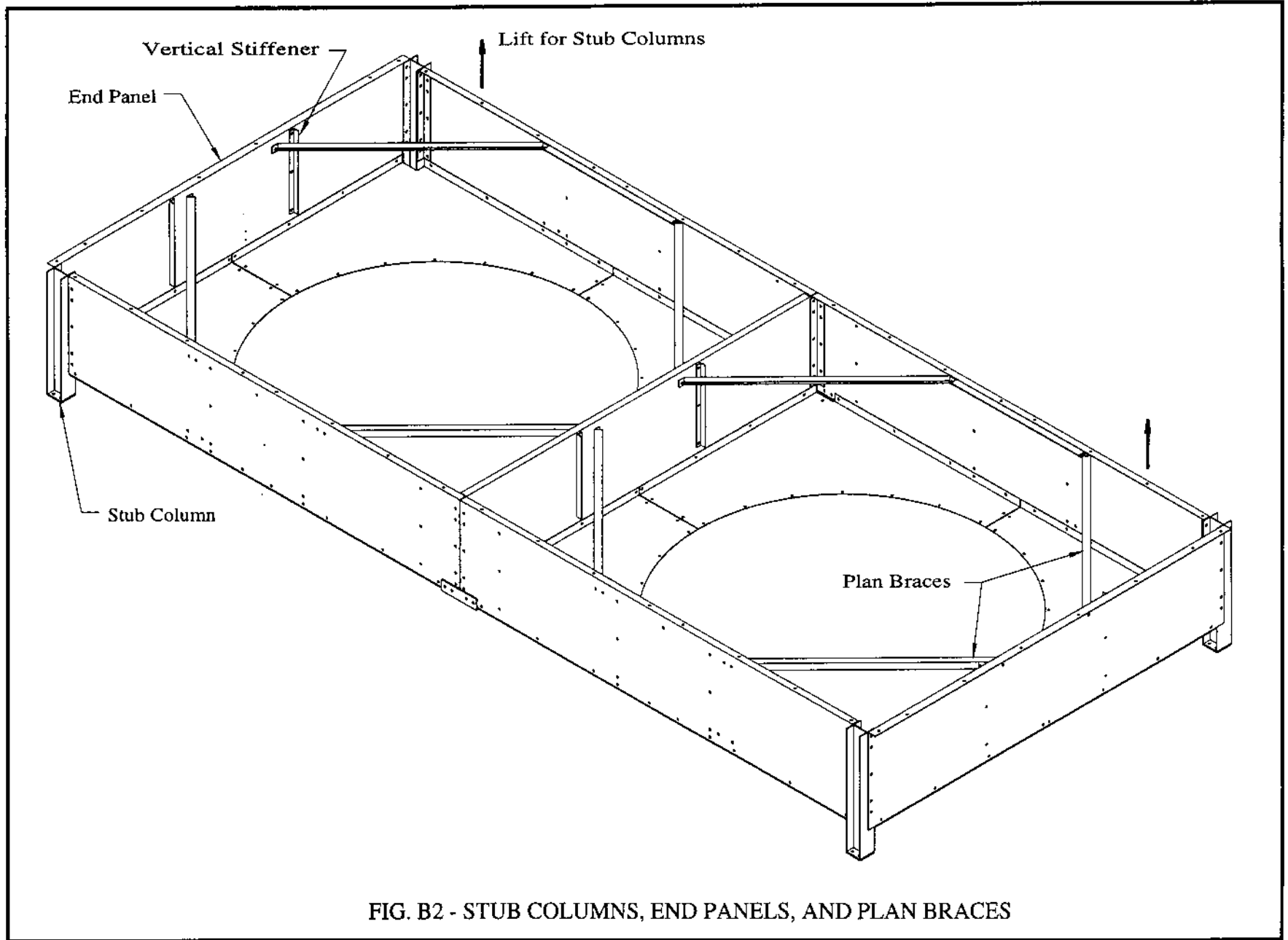


FIG. B2 - STUB COLUMNS, END PANELS, AND PLAN BRACES

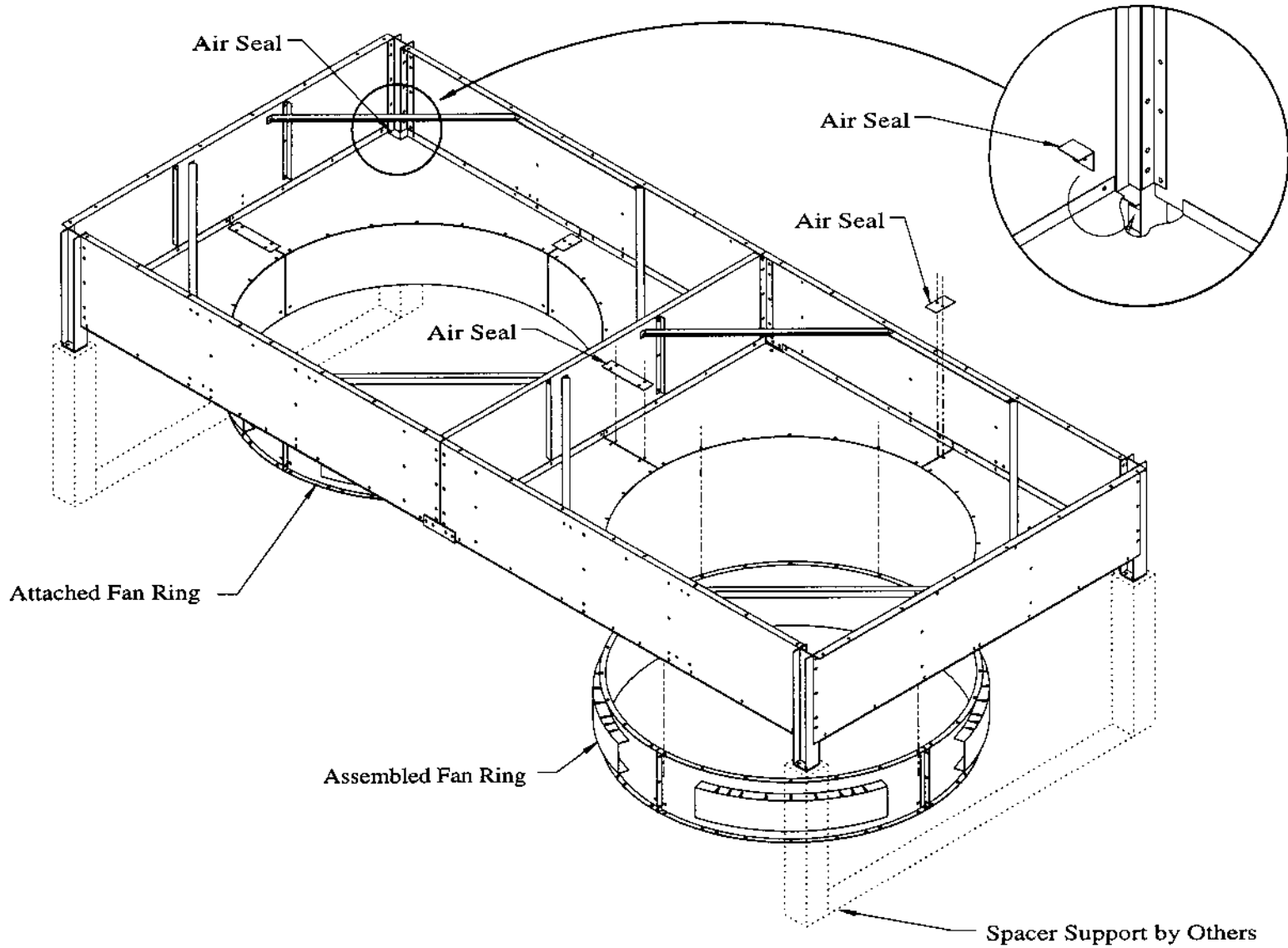


FIG. B3 - FAN RINGS AND AIR SEALS

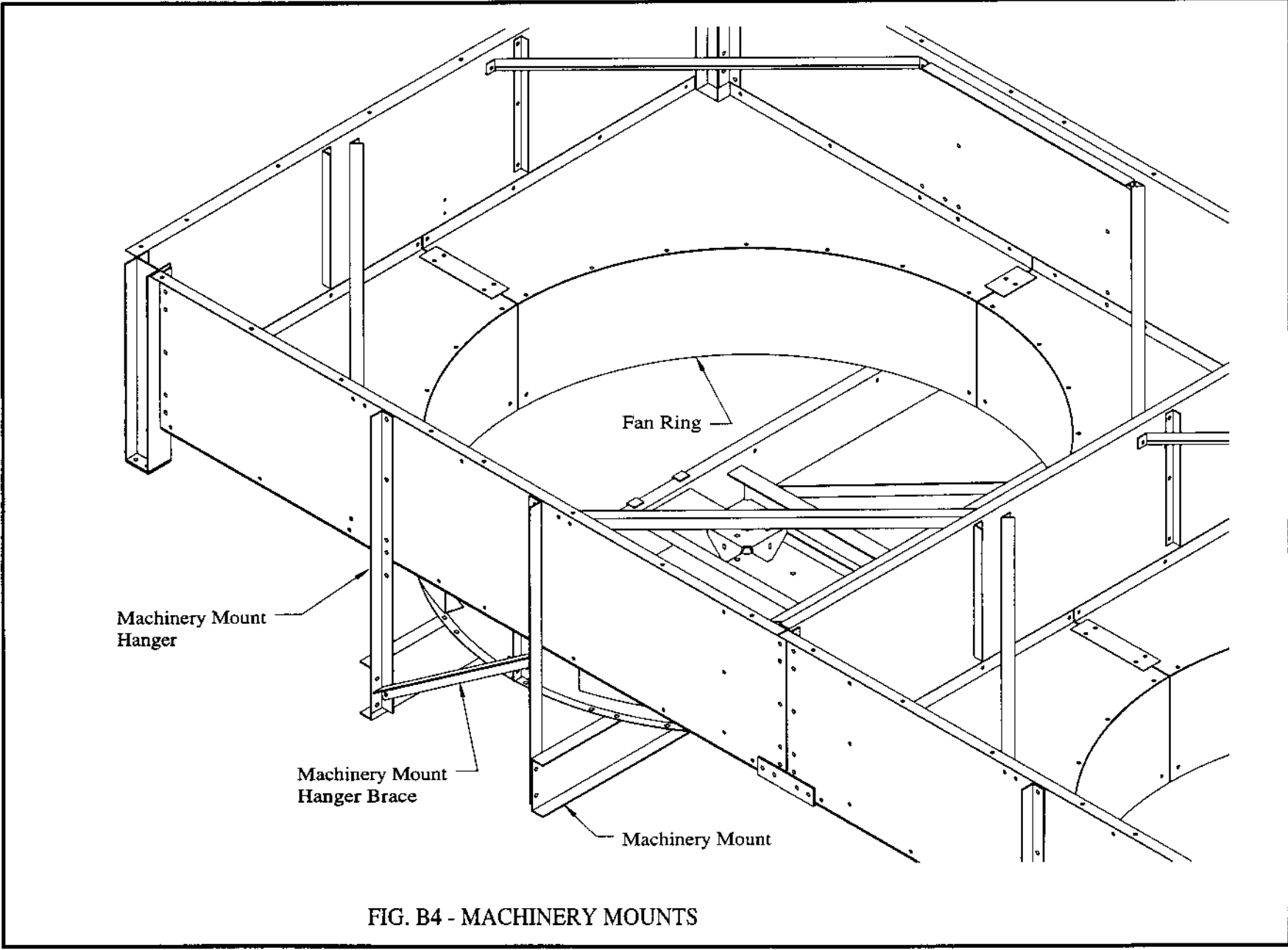


FIG. B4 - MACHINERY MOUNTS



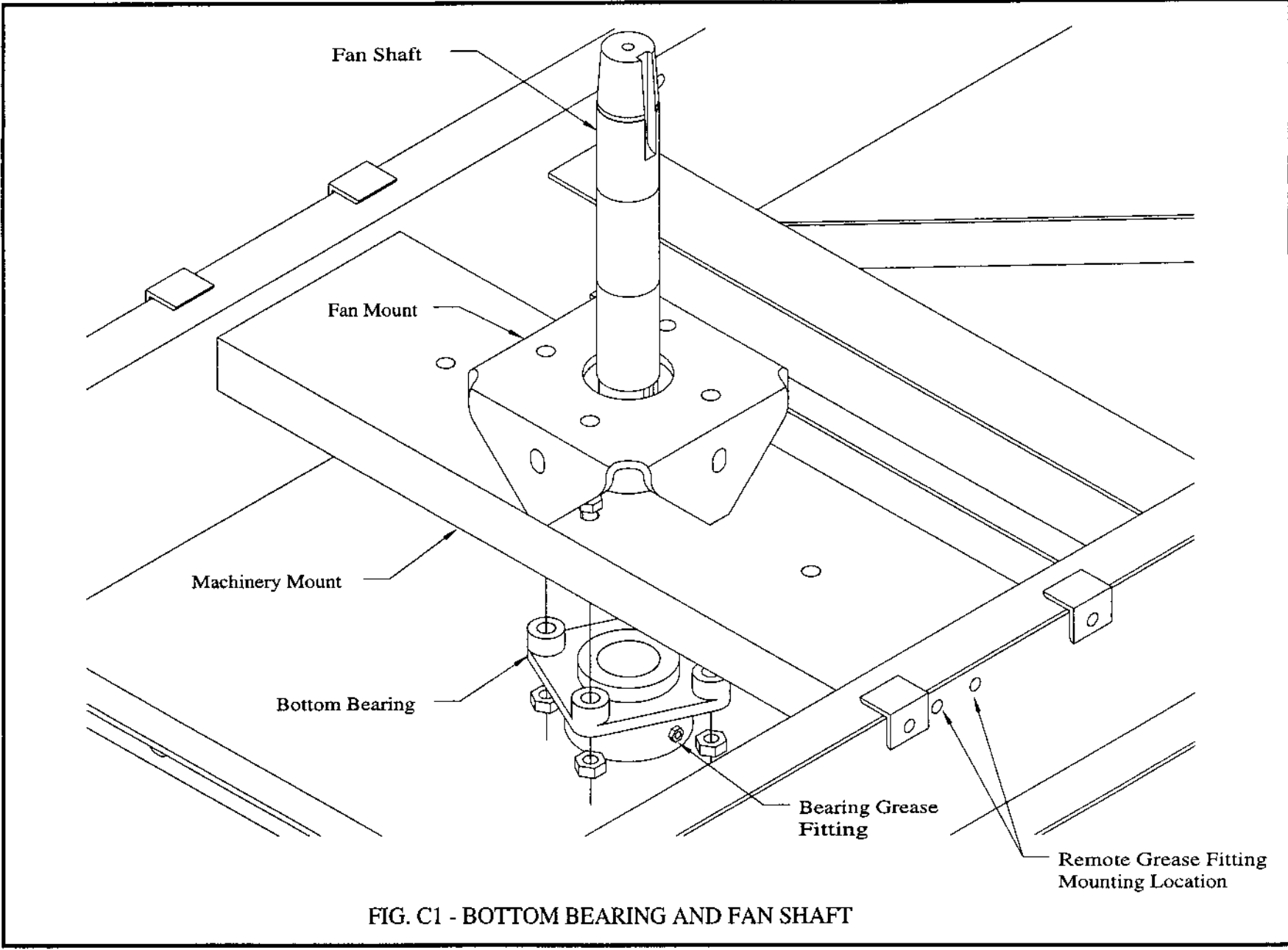


FIG. C1 - BOTTOM BEARING AND FAN SHAFT

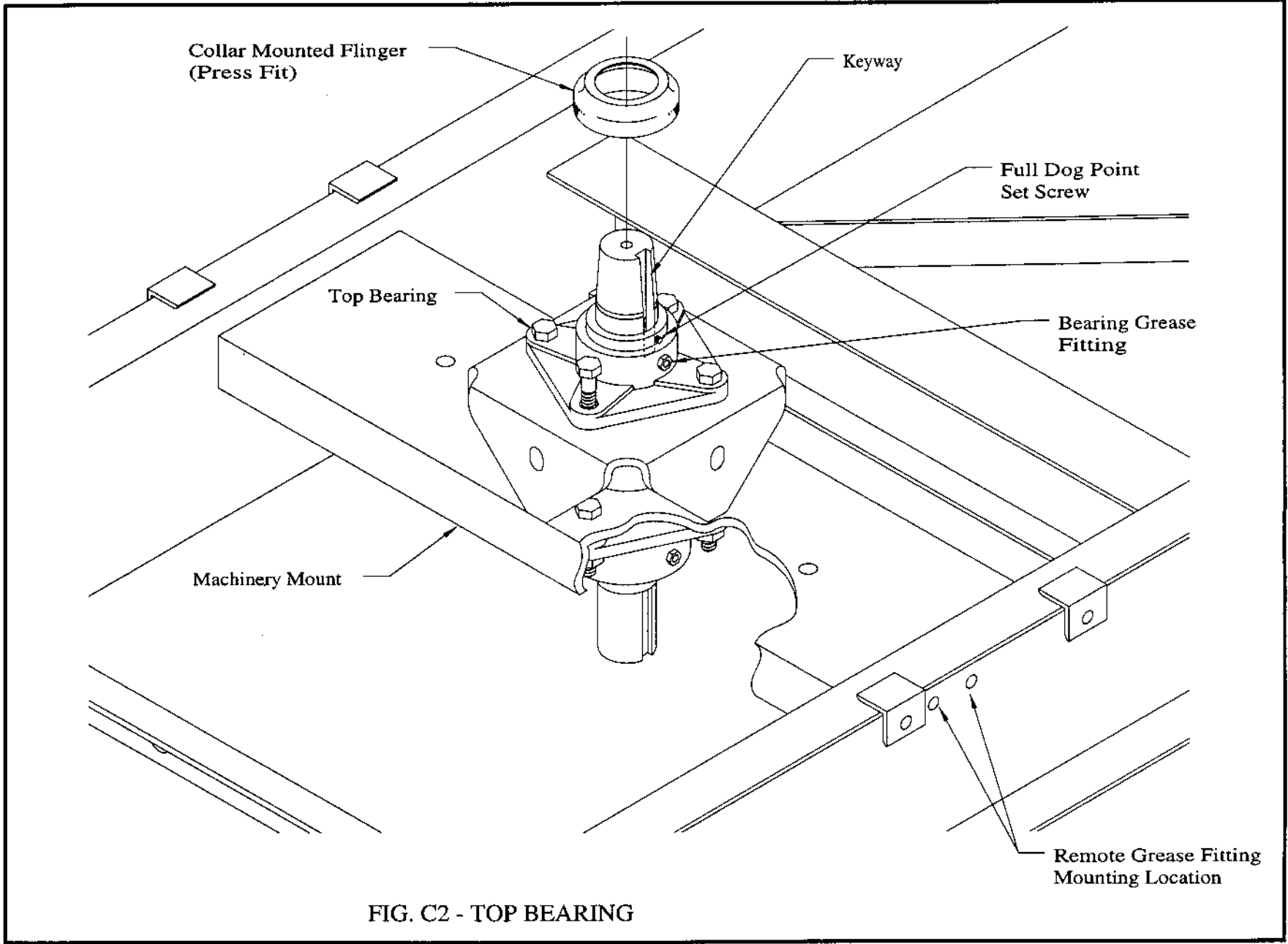


FIG. C2 - TOP BEARING

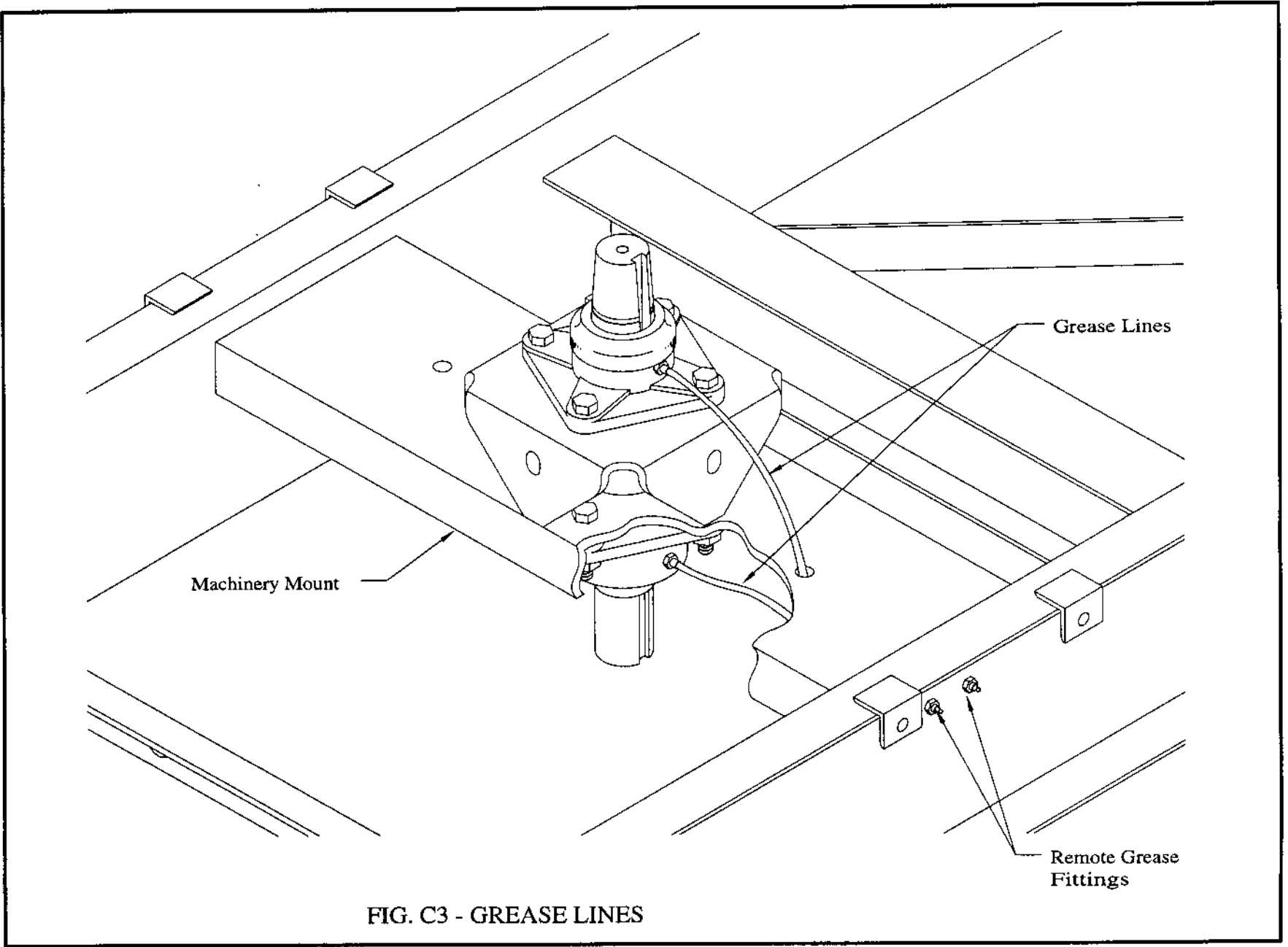


FIG. C3 - GREASE LINES

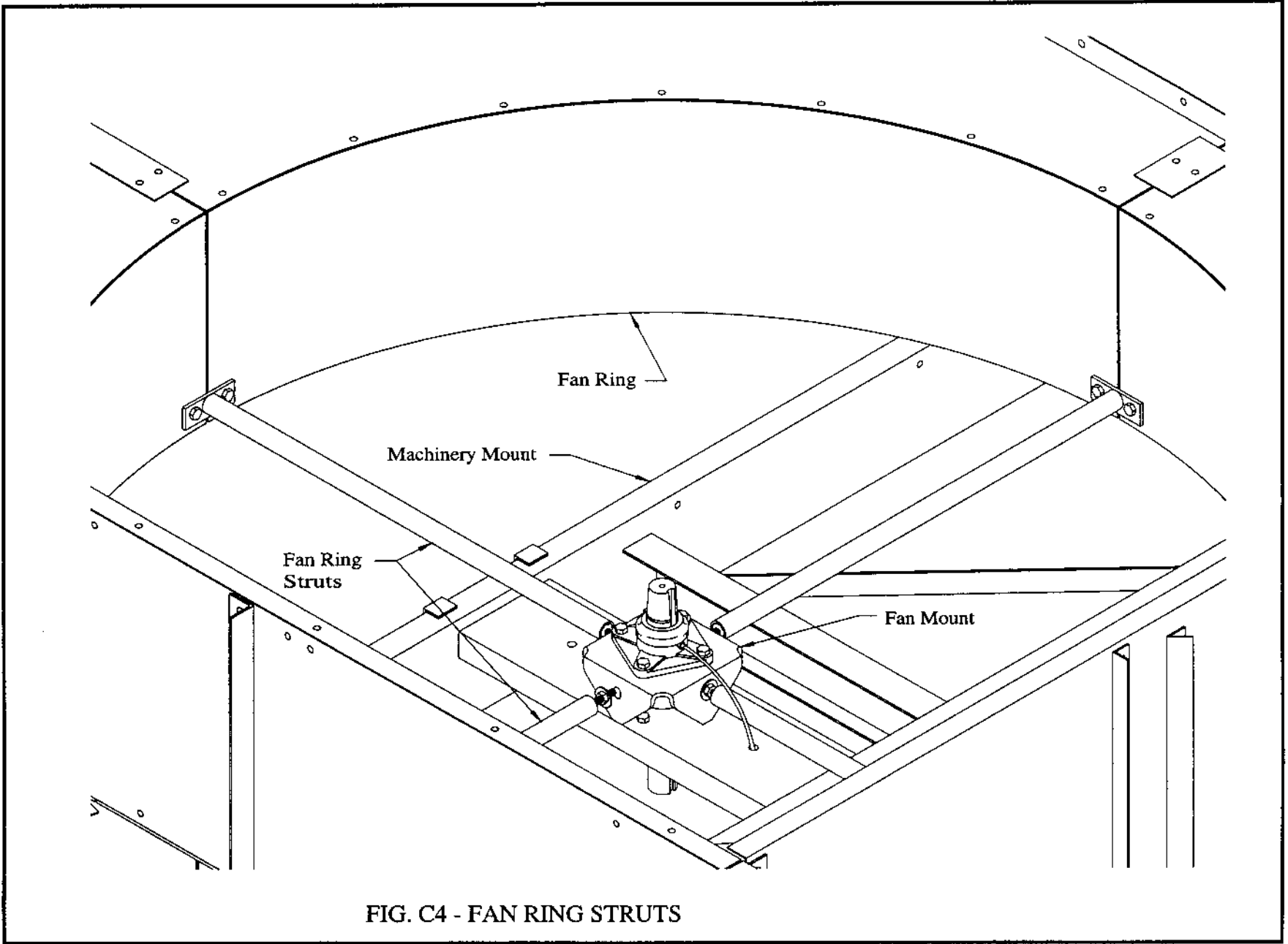


FIG. C4 - FAN RING STRUTS

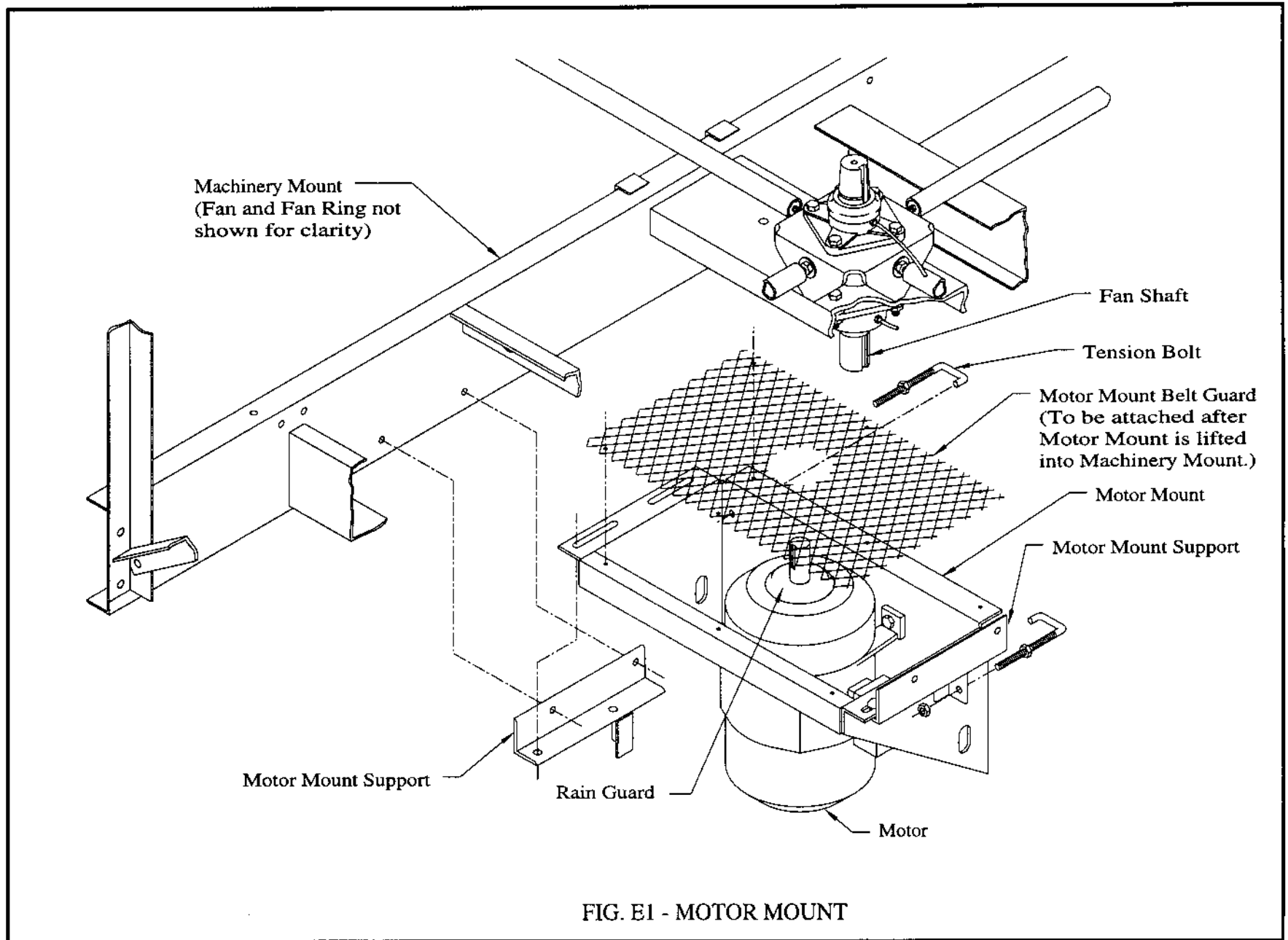


FIG. E1 - MOTOR MOUNT

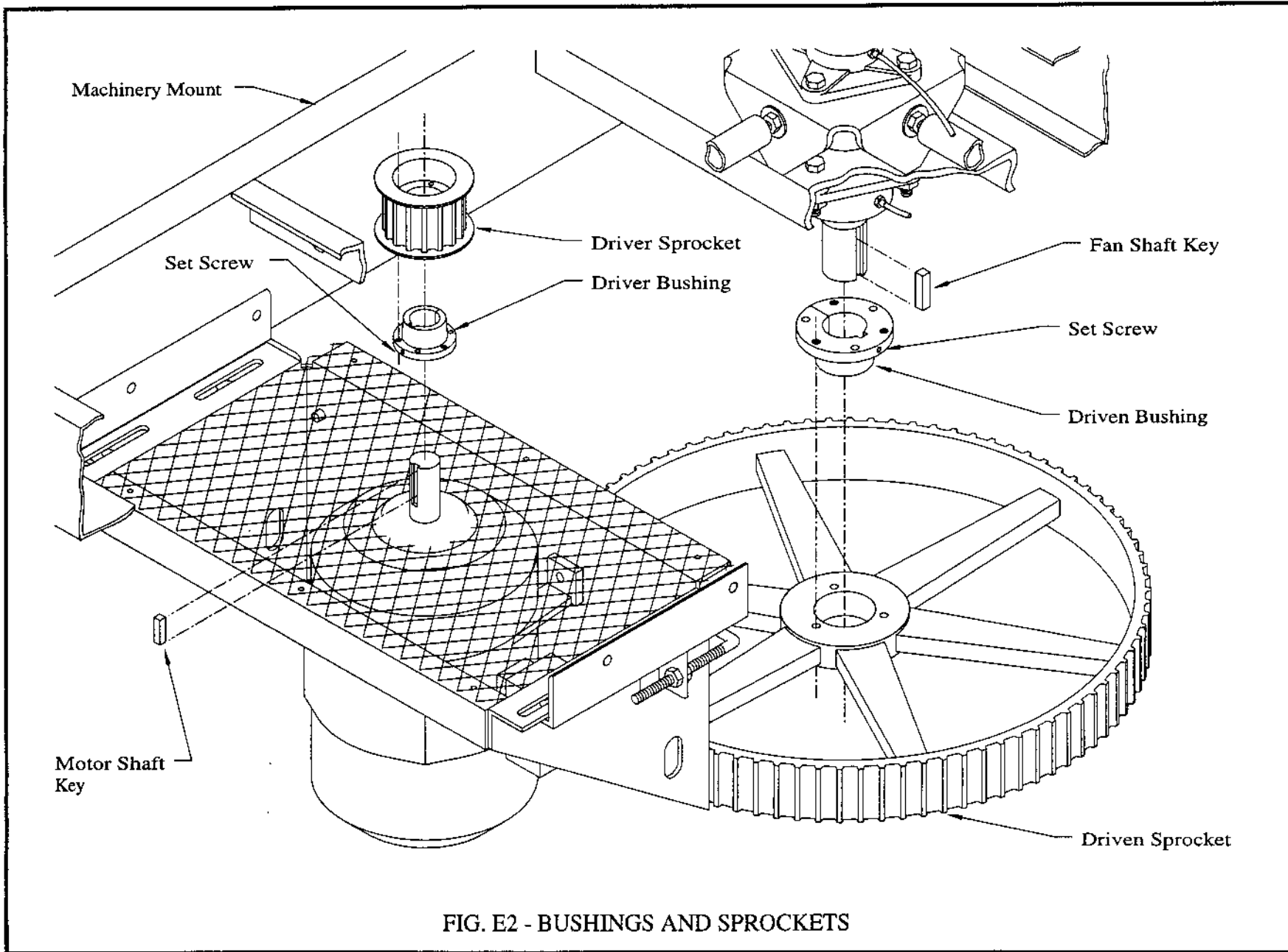
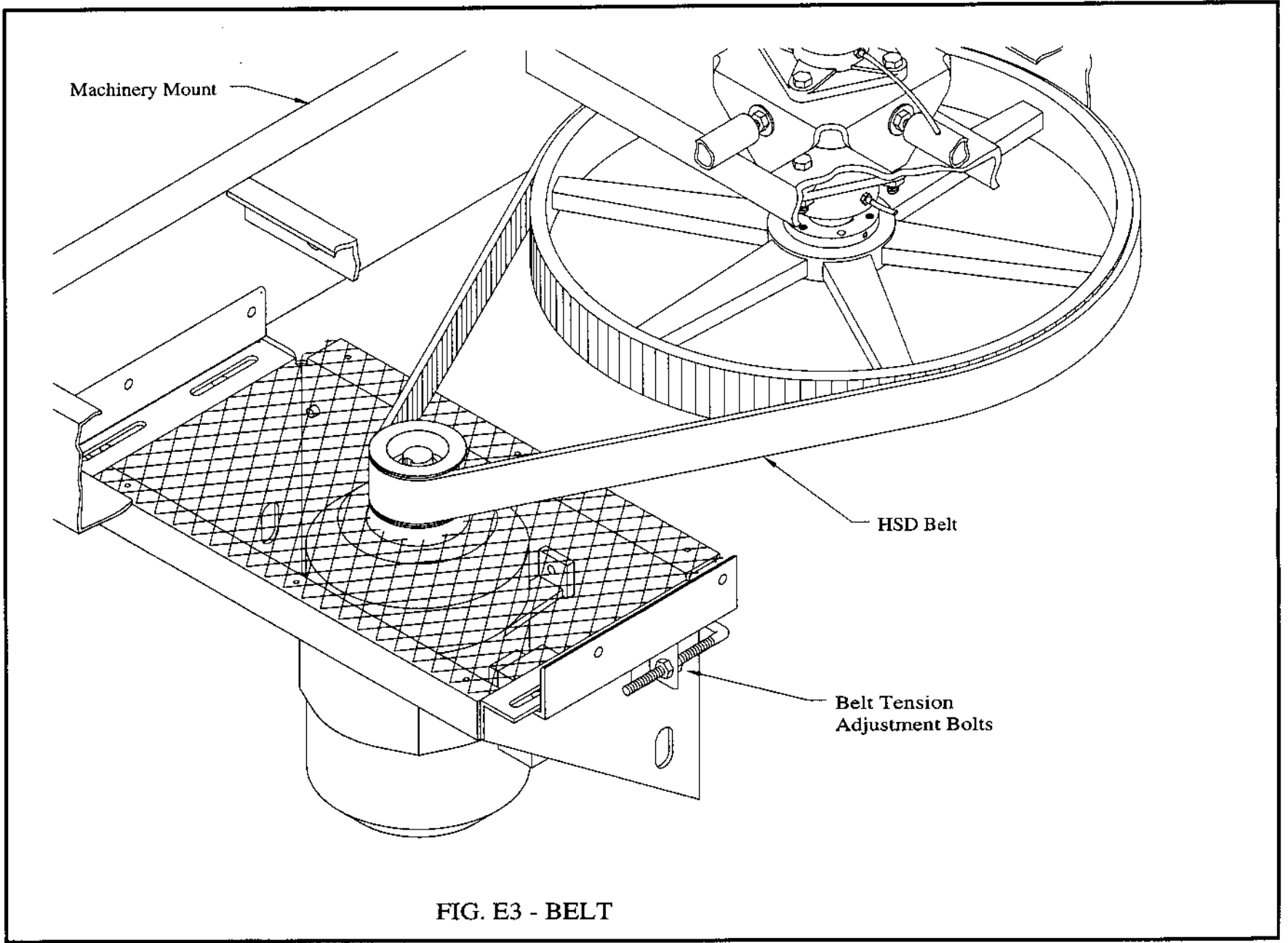
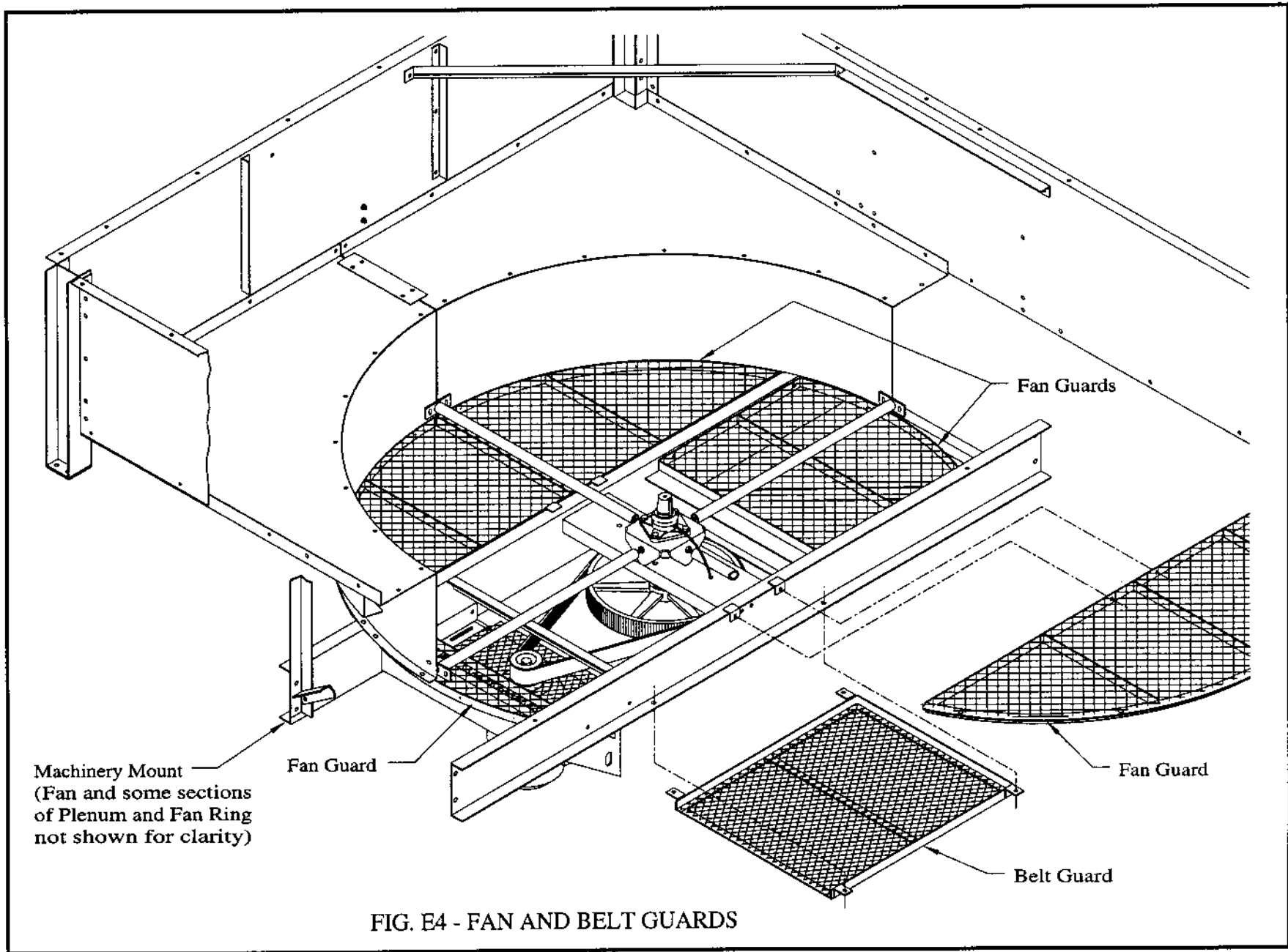
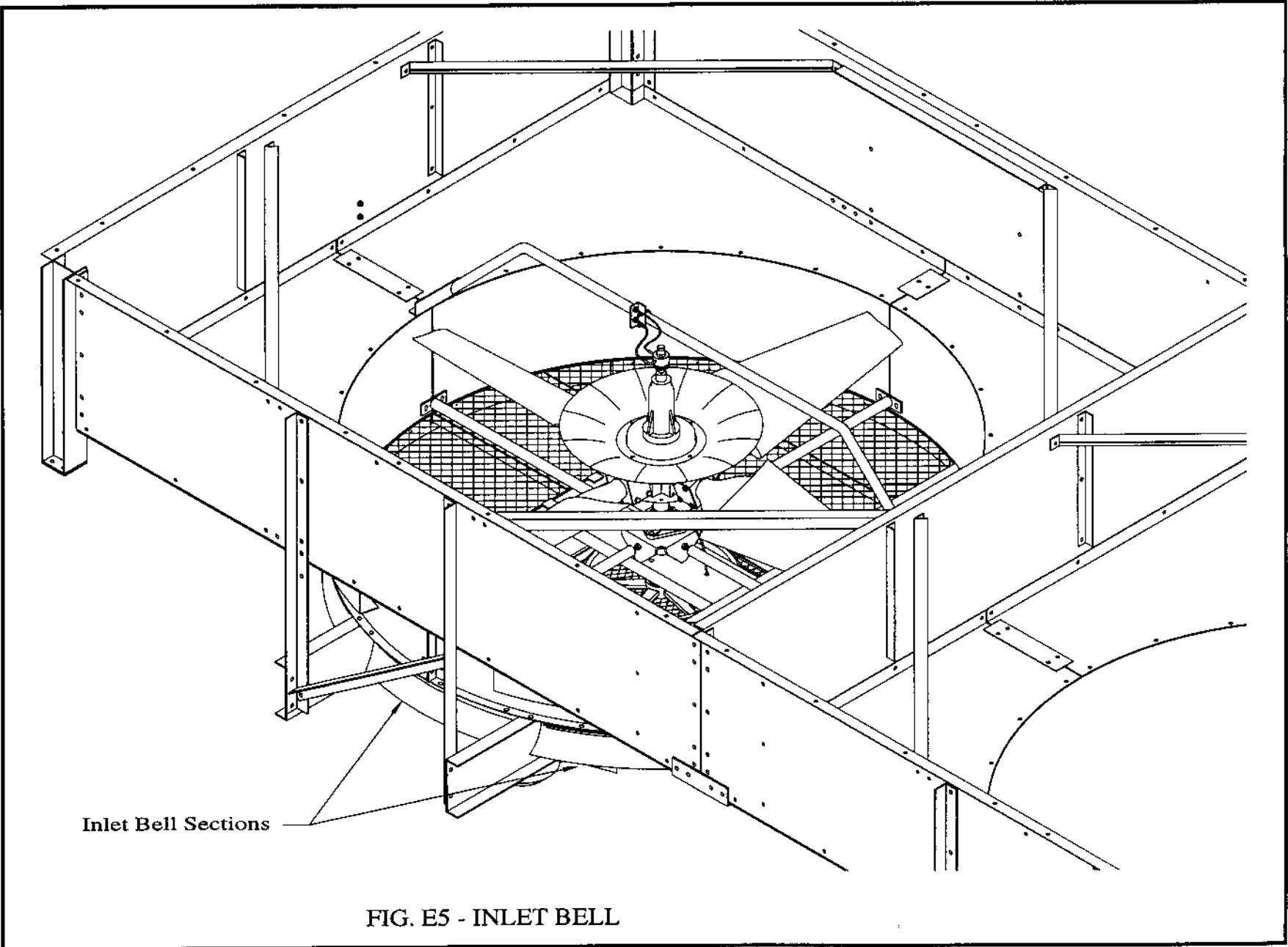


FIG. E2 - BUSHINGS AND SPROCKETS









Inlet Bell Sections

FIG. E5 - INLET BELL