



SERVICE LETTER 1997-6B

April 7, 2003

TO: FAA-Approved Propeller Repair Stations, Owners, Operators and Aircraft Maintenance Personnel

SUBJECT: Troubleshooting & Continued Operation of Turbine Propellers with Blade Seal Leakage

MODELS AFFECTED: All C600, C650, C700, C750, C1000 Series, and C1105 Model propellers

SERVICE MANUALS AFFECTED: 790901, 860201, 810301, 880415, and 890119

This service information is to be added to the appropriate McCauley Service Manual until the next manual revision is issued.

Service Letter 1997-6B replaces Service Letter 1997-6A dated June 21, 1999, Service Letter 1997-6 dated August 5, 1997 and Service Letter 1993-9 dated May 12, 1993. Service Letter 1997-6B changes the affected models. Changes to this service letter, except for editorial changes, are indicated by vertical lines in margins.

McCauley Service Letter 1993-9, dated May 12, 1993, allowed draining of hub oil to allow operation following a blade leak. This service information allows continued operation with a blade leak (refer to Section 2 for specific provisions). Service Letter 1993-9 is now obsolete.

McCauley has received reports from the field concerning blade leaks on turbine propellers. The most probable cause of this problem is the momentary sticking of the blade O-Ring in the hub socket. If this is the cause, cycling the propeller should free the O-Ring, allowing it to "re-form" and seal again. Refer to Section 1 for instructions on cycling the propeller.

McCauley will allow continued operation of a leaking propeller, provided that the criteria in Section 2 is complied with.

NOTE: Turbine engine oil used in propeller hub must be the same MIL-spec or equivalent as used in the engine to prevent contamination of engine oil in case of propeller hub seal leakage. Oil used during propeller assembly at the factory is "Exxon 2380" (MIL-L-23699[X] latest revision).

TO OBTAIN SATISFACTORY RESULTS, PROCEDURES SPECIFIED IN THIS SERVICE INFORMATION MUST BE ACCOMPLISHED IN ACCORDANCE WITH ACCEPTED METHODS AND PREVAILING GOVERNMENT REGULATIONS. MCCAULEY PROPELLER SYSTEMS CANNOT BE RESPONSIBLE FOR THE QUALITY OF WORK PERFORMED IN ACCOMPLISHING THIS SERVICE INFORMATION.

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McCauley Propeller Systems
3535 McCauley Drive
Vandalia, Ohio 45377 USA

NOTE: Leakage from any area other than blade (e.g. front cylinder area) requires that the propeller assembly be removed and sent to an approved propeller repair facility for inspection.

SECTION 1 - Checking/Correcting Leaking Propeller

If a blade leak occurs, perform the following procedures to check the O-Ring and continue operation of the propeller.

1. Clean blade of all traces of oil and dirt using a cloth dampened with mineral spirits.

CAUTION: NEVER EXCEED PUBLISHED ENGINE OPERATIONAL LIMITS.

2. Run engine and cycle propeller from full reverse to high pitch at least five times.
3. Inspect blade for continued oil leakage and clean if necessary per step 1.
4. Repeat step 2.
5. Inspect blade. Leaking should be reduced or completely stopped.
6. If leaking has stopped, proceed to Section 3 for instructions on servicing hub oil level. If leaking has not stopped, proceed to Section 2 for procedures allowing continued operation.

SECTION 2 - Procedure for Continued Operation of Leaking Propeller

Continued operation of a leaking propeller is permitted following compliance with the procedures listed below. The leakage rate may not increase during the next 20 hours +/-5 hours of operation. If leakage increases, it is required that the propeller be removed from the aircraft and sent to an approved propeller shop for repair.

COMPLIANCE: Perform initial hub oil level check/servicing per following instructions (Section 3) and repeat every 10 hours +/- 5 hours.

1. If a propeller continues to leak after 20 hours +/- 5 hours in service after initial check, it is required that the propeller be removed from the aircraft and sent to a propeller shop for repair.
2. If leaking has stopped, proceed to Section 3 for final check and servicing of oil level.

SECTION 3 - Procedure for Checking and Servicing Hub Oil Level

Check propeller hub stamping for specific propeller models. Instructions are model specific. Blade number is stamped near blade socket on propeller hub.

3-Blade Propeller

**Figure 1: Propeller Models: 3GFR34C701-B or later with 500 cc (.53 quarts) oil
3GFR34C702
3GFR34C703
3GFR34C704**

1. Place #1 blade in approximately the 11 o'clock (11:00) position.
2. To check propeller hub oil level, perform the following steps:
 - a. Remove lower oil-fill screw.
 - b. Oil level should be even with or just below screw hole.

If oil level is correct, proceed to Step 5. If oil level needs servicing, proceed to Step 3.

3. Remove upper oil-fill screw.
4. Fill propeller hub with turbine engine oil to the level of the lower screw hole.
5. Install new lubricated A-1750-6 Dyna Seal (if available) and A-1635-149 Screw in propeller hub. Torque screw 30-36 lb-in. and apply sentry stripe to screw and hub.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

Figure 2: Propeller Model: 3GFR34C701-"blank" or "-A" with 1875cc (1.98 quarts) oil

1. Place #3 blade in 12 o'clock (12:00) position.
2. To check hub oil level, perform the following:

WARNING: PROPELLERS WHICH HAVE HAD BLADE PLUGS REMOVED MUST INCREASE OIL LEVEL TO 2545CC (2.69 QUARTS) OF OIL PER SERVICE BULLETIN 148-2.

- a. Remove oil fill screw between blades two (2) and three (3).
- b. Oil level should be even with or just below screw hole.

If oil level is correct, proceed to Step 5. If oil level needs servicing, proceed to Step 3.

3. Since there is only one hole used to fill hub cavity with oil, insert a small hose into screw hole, this will allow air to escape around hose. A large syringe filled with oil may also be used for filling hub cavity.
4. Fill propeller hub with turbine engine oil to level of screw hole.
5. Install new lubricated A-1750-6 Dyna Seal (if available) and A-1635-136 Screw in propeller hub. Torque screw 30-36 lb-in. and apply sentry stripe to screw and hub.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

Figure 3: Propeller Model: 3GFR34C602 with 500cc (.53 quarts) oil

1. Place #1 blade in 7 o'clock (7:00) position.
2. To check hub oil level, perform the following:
 - a. Remove slot block screw from the #1 socket.
 - b. Oil level should be even with or just below slot block screw hole.

If oil level is correct, proceed to Step 5. If oil level needs servicing, proceed to Step 3.

3. Remove oil-fill pipe plug.
4. Fill propeller hub with turbine engine oil to level of slot block screw hole.

CAUTION: CAUTION MUST BE OBSERVED WHEN REINSTALLING THE SLOT BLOCK SCREW SO THAT THE SLOT BLOCK IS NOT PUSHED BACK INTO THE HUB CAVITY. IF THIS SHOULD OCCUR, THE PROPELLER MUST BE REMOVED AND SENT TO AN APPROVED PROPELLER REPAIR FACILITY FOR REPAIR.

5. Remove all traces of Permatex by cleaning pipe plug threads with solvent, MEK. Clean threaded area of pipe plug hole using cotton swab and solvent, being careful no old permatex enters hub cavity, allow to dry. Apply Permatex No. 2 sealant (per package instructions) to threads of A-4714 Pipe Plug. Torque pipe plug 50-55 lb. in. and apply sentry stripe to plug and hub. Install new lubricated A-1750-4 Dyna Seal (if available) and A-1635-127 Screw in slot block . Torque screw to 25-20 lb. in.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

Figure 4: Propeller Model: 3GFR34C601 with 2240cc (2.37 quarts) oil

1. Place #1 blade in 6 o'clock (6:00) position.
2. To check hub oil level, perform the following:
 - a. Remove oil-fill pipe plug.
 - b. Oil level should be even with or just below plug hole.

If oil level is correct, proceed to Step 5. If oil level needs servicing, proceed to Step 3.

3. Since there is only one hole used to fill hub cavity with oil, insert a small hose into pipe plug hole, this will allow air to escape around hose. A large syringe filled with oil may also be used for filling hub cavity.
4. Fill propeller hub with turbine engine oil to level of pipe plug hole.
5. Clean pipe plug threads with solvent, MEK. Clean threaded area of pipe plug hole using cotton swab and solvent, being careful no old permatex enters hub cavity. Allow to dry. Apply Permatex No. 2 sealant (per package instructions) to threads of A-4714 Pipe Plug. Torque pipe plug 50-55 lb. in. and apply sentry stripe to plug and hub.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

4-Blade Propeller

**Figure 5: Propeller Models: 4HFR34C754 with 500cc (.53 quarts) oil
4HFR34C762
4HFR34C763**

1. Place blade #1 in 1 o'clock (1:00) position.
2. To check hub oil level, perform the following steps:
 - a. Remove lower oil-fill screw.
 - b. Oil level should be even with or just below screw hole.

If oil level is correct, proceed to Step 5. If oil level need servicing, proceed to Step 3.

3. Remove upper oil-fill screw.
4. Fill propeller hub with turbine engine oil to level of lower screw hole.
5. Install new lubricated A-1750-6 Dyna Seal (if available) and A-1635-136 Screw in propeller hub. Torque screw 30-36 lb-in. and apply sentry stripe to screw and hub.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

Figure 6:	Propeller Models:	4HFR34C652	with 2480cc (2.62 quarts)
		4HFR34C653	
		4HFR34C661	
		4HFR34C662	
		4HFR34C663	
		4HFR34C760	
		4HFR34C761	
		4HFR34C764	
		4HFR34C766	
		4HFR34C768	
		4HFR34C769	
		4HFR34C771	
		4HFR34C773	
		4HFR34C774	
		4JFR34C758	with 2650cc (2.79 quarts)

1. Place blade #1 in 1 o'clock (1:00) position.
2. To check hub oil level, perform the following:
 - a. Remove upper oil-fill screw.
 - b. Oil level should be even with or just below screw hole.

If oil level is correct, proceed to Step 5. If oil level needs servicing, proceed to Step 3.

3. Because oil level is above lower oil-fill screw hole, there is only one hole usable to fill hub cavity with oil. Insert a narrow hose into upper oil-fill screw hole, this will allow air to escape around hose. A large syringe filled with oil may also be used for filling hub cavity.
4. Fill propeller hub with turbine engine oil to level of upper screw hole.
5. Install new lubricated A-1750-6 Dyna Seal (if available) and A-1635-136 Screw in propeller hub. Torque screw 30-36 lb-in. and apply sentry stripe to screw and hub.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

5-Blade Propeller

**Figure 7: Propeller Model: 5JFR36C1003 with 825cc (.87 quarts) oil
5JFR36C1006**

1. Place #1 blade in 3 o'clock (3:00) position.
2. To check hub oil level, perform the following steps:
 - a. Remove lower oil-fill screw.
 - b. Oil level should be even with or just below screw hole.

If oil level is correct, proceed to Step 5. If oil level needs servicing, proceed to Step 3.

3. Remove upper oil-fill screw.
4. Fill propeller hub with turbine engine oil to the level of the lower screw hole.
5. Install new lubricated A-1750-6 Dyna Seal (if available) and A-1635-136 Screw in propeller hub. Torque screw 30-36 lb-in. and apply sentry stripe to screw and hub.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

| Figure 8: Propeller Models: 5HFR34C1105 with 825cc (.87 quarts) oil

1. Place #1 blade in 12 o'clock (12:00) position.
2. To check hub oil level, perform the following steps:
 - a. Remove lower oil-fill screw.
 - b. Oil level should be even with or just below screw hole.

If oil level is correct, proceed to Step 5. If oil level needs servicing, proceed to Step 3.

3. Remove upper oil-fill screw.
4. Fill propeller hub with turbine engine oil to the level of the lower screw hole.
5. Install new lubricated A-1750-6 Dyna Seal (if available) and A-1635-136 Screw in propeller hub. Torque screw 30-36 lb-in. and apply sentry stripe to screw and hub.
6. Make appropriate entry, with propeller total time, indicating compliance with this service letter in aircraft/engine logbook.

APPROVAL: FAA approval has been obtained on technical data in this publication that affects product type design.

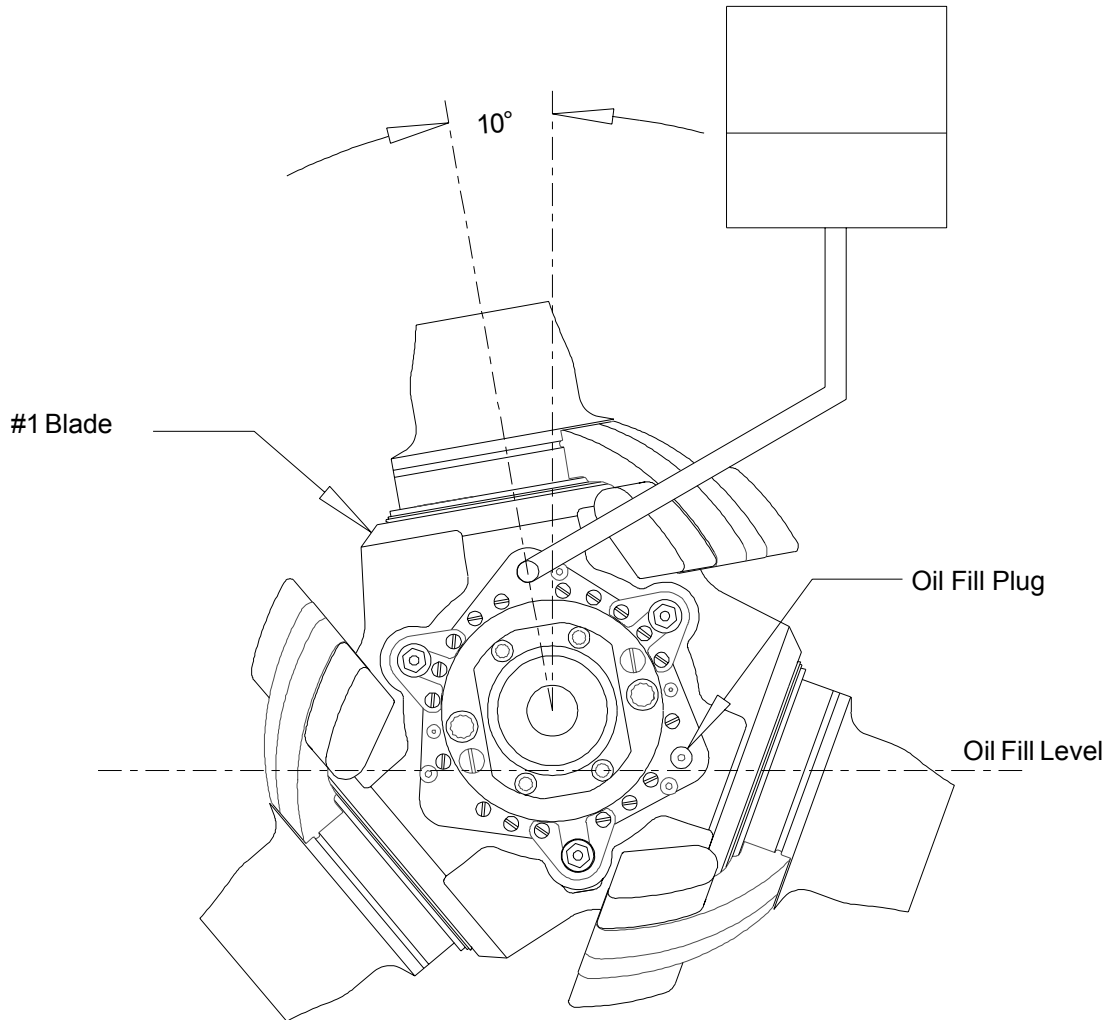


Figure 1. 3-Blade Hub Oil Fill Detail
3GFR34C701-B or later,
3GFR34C702,
3GFR34C703
3GFR34C704

NOTE: Early models were manufactured with different hub oil levels. When complying with this service letter, hub oil level should be adjusted to 500 cc. regardless of earlier level.

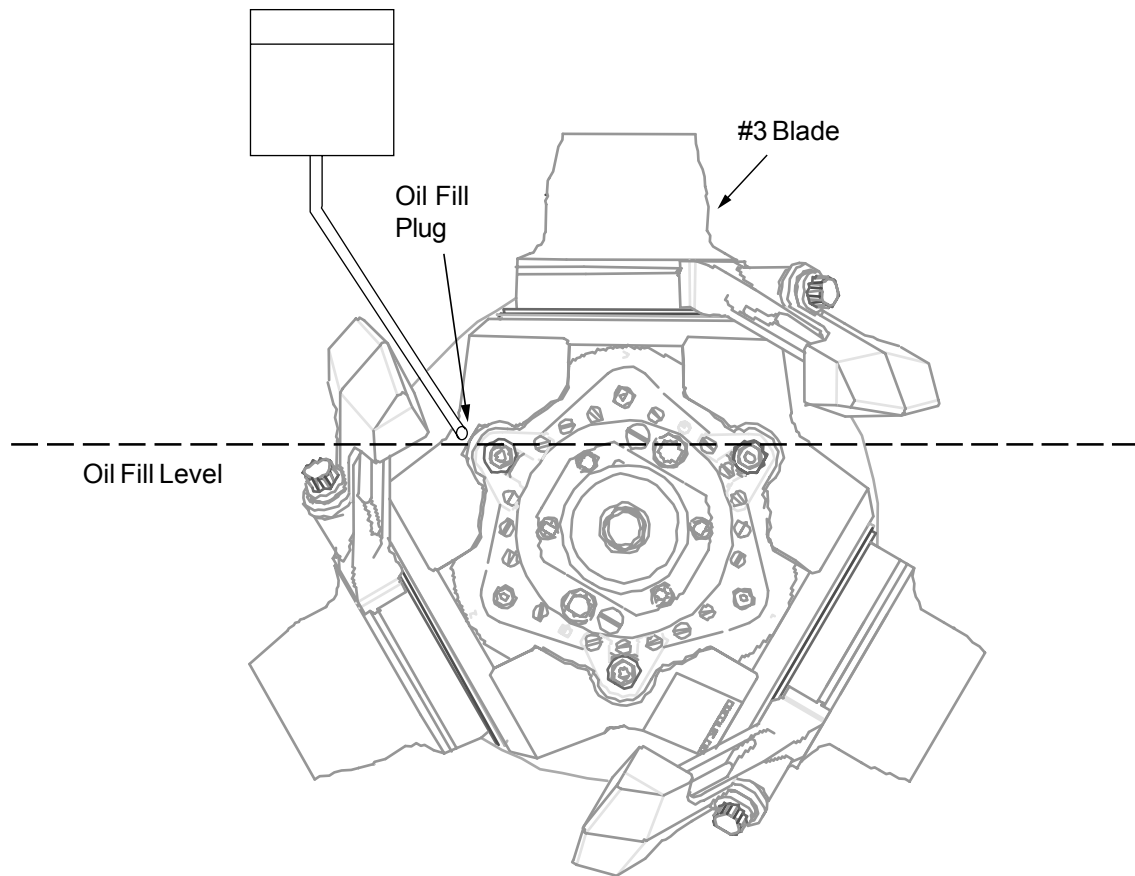


Figure 2. 3-Blade Hub Oil Fill Detail
3GFR34C701-"blank" or -"A"
Oil Capacity 1875cc (1.98 quarts)

WARNING: PROPELLERS WHICH HAVE HAD BLADE PLUGS REMOVED MUST INCREASE OIL LEVEL TO 2545CC (2.69 QUARTS) OF OIL.

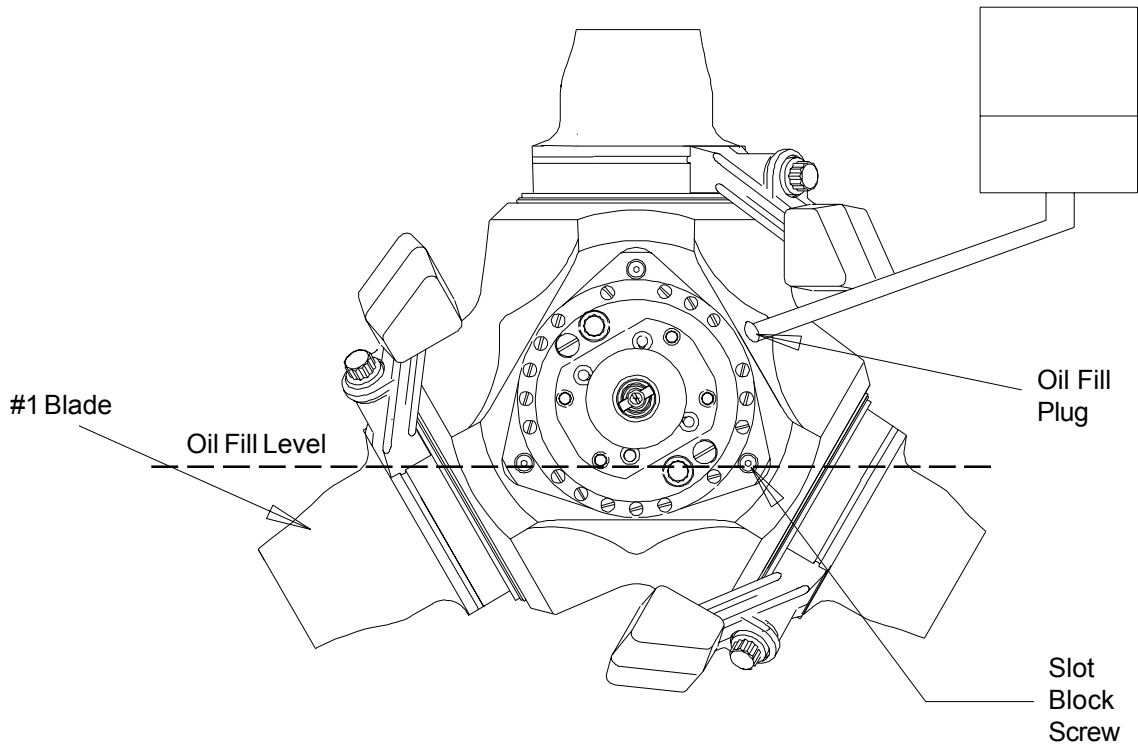


Figure 3. 3-Blade Hub Oil Fill Detail
3GFR34C602
Oil Capacity 500cc (.53 quarts)

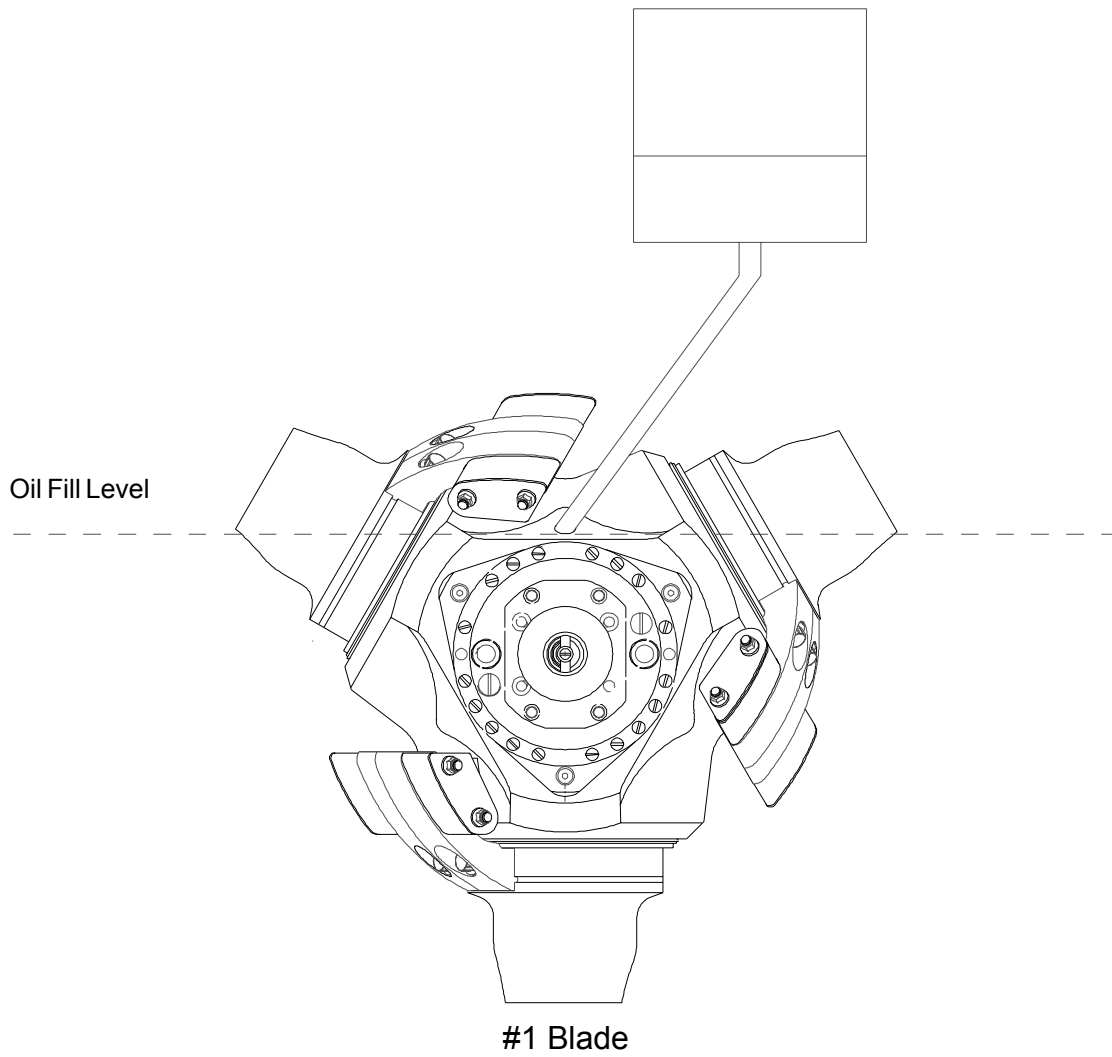


Figure 4. 3-Blade Hub Oil Fill Detail
3GFR34C601
Oil Capacity 2240cc (2.37 quarts)

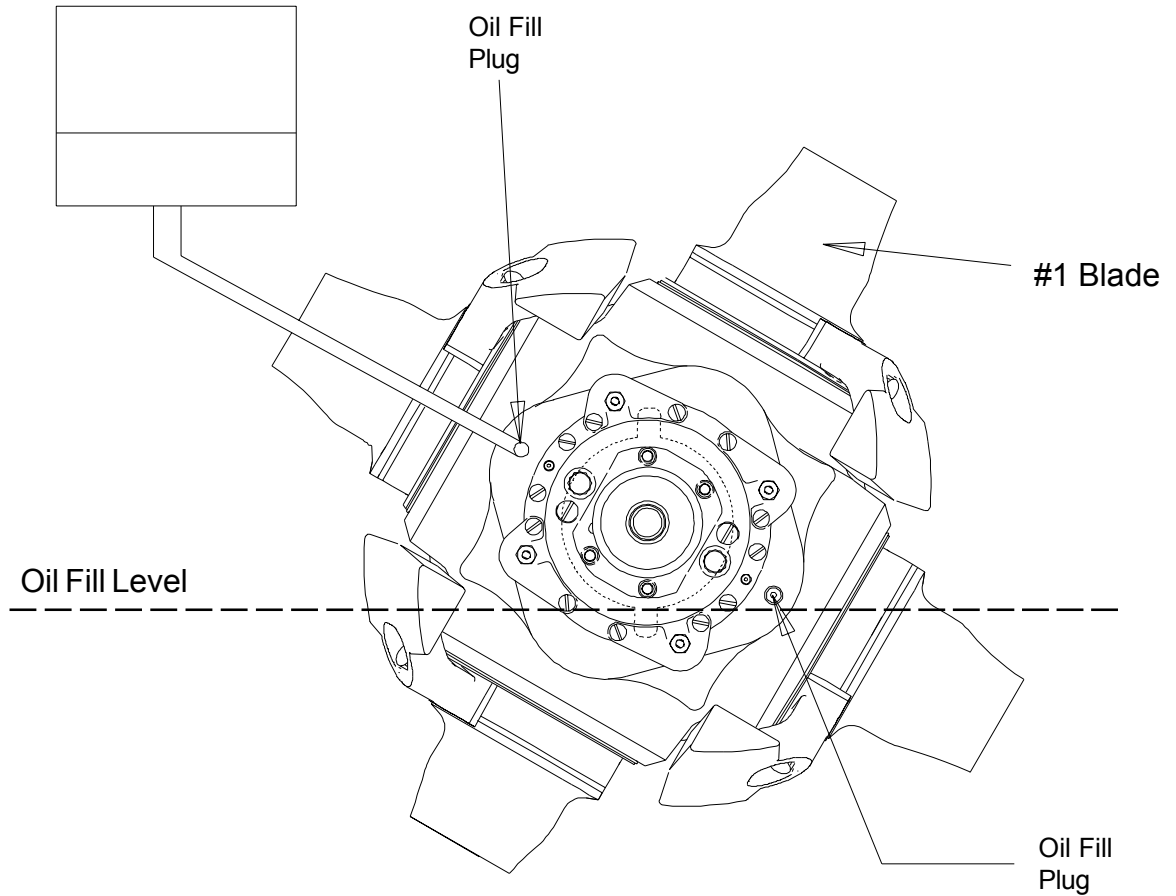


Figure 5. 4-Blade Hub Oil Fill Detail
4HFR34C754,
4HFR34C762,
4HFR34C763
Oil Capacity 500cc (.53 quarts)

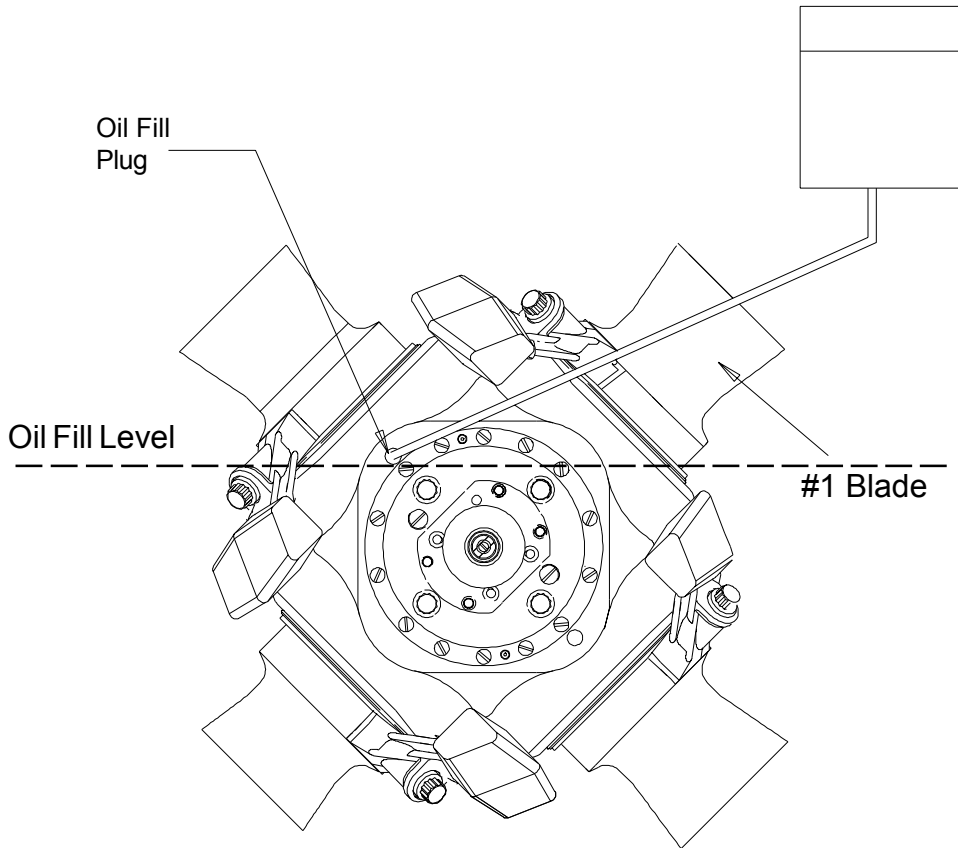


Figure 6. 4-Blade Hub Oil Fill Detail

4HFR34C652, 4HFR34C653,
4HFR34C661, 4HFR34C662,
4HFR34C663, 4HFR34C760,
4HFR34C761, 4HFR34C764,
4HFR34C766, 4HFR34C768,
4HFR34C769, 4HFR34C771,
4HFR34C773, 4HFR34C774

Oil Capacity 2480cc (2.62 quarts)

4HFR34C758

Oil Capacity 2650cc (2.79 quarts)

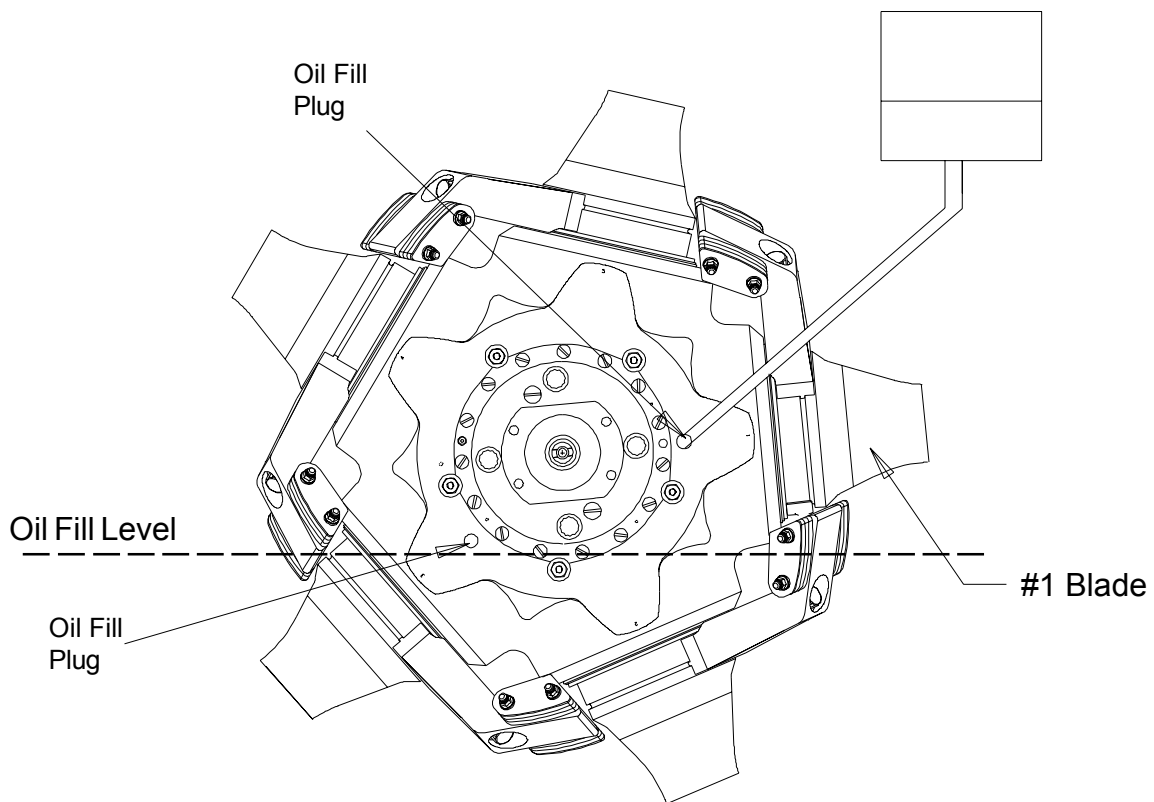


Figure 7. 5-Blade Hub Oil Fill Detail
5JFR36C1003
5JFR36C1006
Oil Capacity 825cc (.87quarts)

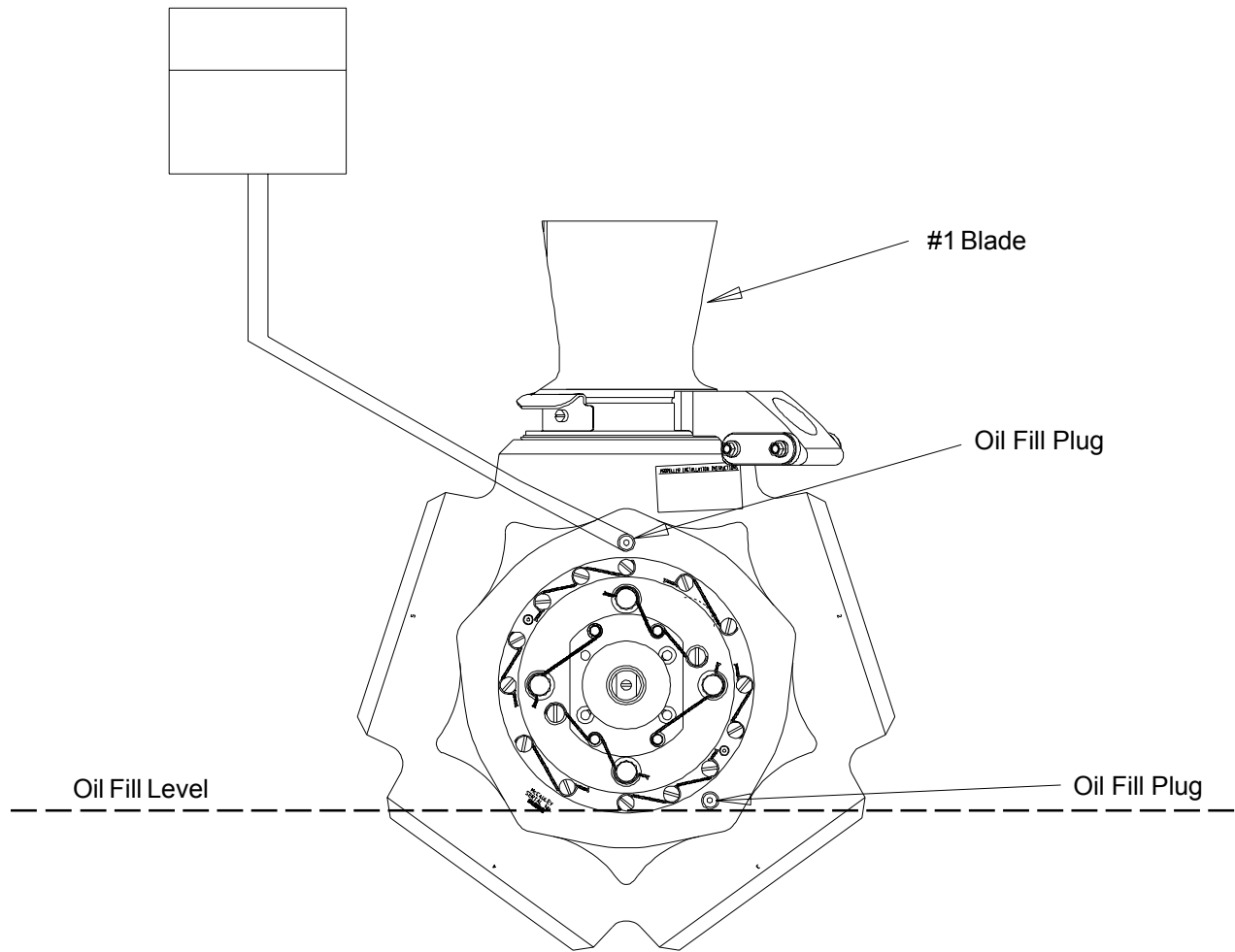


Figure 8. 5-Blade Hub Oil Fill Detail
5HFR34C1105
Oil capacity 825cc (.87 quarts)