



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Maintenance Alerts

AC No. 43-16A



**ALERT NO. 250
MAY 1999**

**Improve Reliability-
Interchange Service
Experience**

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**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20590**

AVIATION MAINTENANCE ALERTS

The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products. The contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Designee Standardization Branch (AFS-640); P.O. Box 25082; Oklahoma City, OK 73125-5029.

**UNAPPROVED PARTS
NOTIFICATIONS**

**TITANIUM FLANGES AND BEVEL
GEARS**

**No. 96-260
April 7, 1999**

The following unapproved parts notification was published by the FAA Flight Standards District Office (FSDO) located in Baton Rouge, Louisiana.

AFFECTED AIRCRAFT: American Eurocopter (MBB) Model BO-105.

PURPOSE: Possible problems related to a titanium flange (P/N 4638-205-007, serial number 1261) and a bevel gear (P/N 4638-303-001, serial number 1712).

BACKGROUND: The parts originated from a transmission that was involved in an accident. The parts were inspected and possibly used when the transmission was overhauled.

RECOMMENDATION: Regulations require that U.S. type certificated products conform to their type design. Helicopter owners, operators, maintenance organizations, manufacturers, and parts suppliers should inspect their helicopters and/or parts inventory for the parts previously referenced. If the items are installed, appropriate action should be taken. If found in existing aircraft parts stock, we recommend that the parts be quarantined to prevent installation until authorities can determine each part's eligibility for installation.

FURTHER INFORMATION: The Baton Rouge Flight Standards District Office (FSDO) appreciates any information concerning the discovery of these parts from any source, the means used to identify the source, and the action taken to remove them from service or stock. This notice originated from the Baton Rouge FSDO, ATTN: Lew Smith, 9191 Plank Road, Baton Rouge, LA 70811. The telephone number is (504) 358-6800. This notice was published through the Suspected Unapproved Parts Program Office, AVR-20, telephone (703) 661-0581, Fax (703) 661-0113.

BLADDER FUEL CELLS

No. 96-269
April 13, 1999

The following unapproved parts notification was published by the FAA Manufacturing Inspection Office (MIO) located in Fort Worth, Texas.

AFFECTED AIRCRAFT: Twin Commander Models 680, 685, and 690 Series; Raytheon (formerly Beech) Models 65 and 90 Series; Cessna Models 310, 320, 340, 401, 402, 411, 414, and 421 Series; Piper Models PA-23 and PA-24 Series. NOTE: Additional aircraft manufacturer's models may be affected; however, specific information pertaining to other affected aircraft is unknown at this time.

PURPOSE: This notification advises all owners, operators, maintenance entities, and manufacturers of the above listed airplanes that unapproved bladder fuel cells were sold and may have been installed on these airplanes.

BACKGROUND: During a suspected unapproved parts investigation, the Federal Aviation Administration (FAA) determined that the Duraflex Fuel Cells Corporation and Fuel Cells Maintenance Inc., located in Little Rock, Arkansas, sold certain bladder fuel cells which were not FAA approved. The Duraflex Fuel Cells Corporation produced bladder fuel cells and Fuel Cells Maintenance, Inc., repaired bladder fuel cells. The production and repair of these fuel cells do not meet FAA-approved design requirements, and as a result, are not eligible for installation on type certificated airplanes. If these fuel cells are used in service, fuel leakage may occur. The majority of these fuel cells were sold to A. C. Team (previously known as A. C. Fuel Cells Worldwide, Inc.), located in Memphis, Tennessee. These parts were manufactured and/or repaired between August 1, 1996, and November 24, 1997. The part numbers and serial numbers of the affected fuel cells are listed in this article.

RECOMMENDATION: Regulations require that type certificated products conform to their type design. Owners, operators, maintenance entities, and manufacturers should inspect their airplanes or stock for the listed part numbers and serial numbers, verify the FAA approval status of parts purchased from Duraflex Fuel Cells Corporation or repaired by Fuel Cells Maintenance Inc., and if any of the parts are installed, take appropriate action. If any of the parts identified in the list are found in existing aircraft parts stock, we recommend that the parts be quarantined to prevent installation until authorities determine each part's eligibility for installation. NOTE: As a result of the suspected unapproved parts investigation, the FAA compiled this list. However, if you have any information which identifies additional parts which are not listed, please contact the FAA. (See the address shown in the following paragraph.)

FURTHER INFORMATION: The Fort Worth FAA Manufacturing Inspection Office (MIO) appreciates any information concerning the discovery of these parts from any source, the means used to identify the source, and the actions taken to remove the parts from the aircraft and/or stock. This notice originated from the Fort Worth MIO, 2601 Meacham Boulevard, Fort Worth, TX 76137-4298, telephone (817) 222-5180, Fax (817) 222-5995, and was published through the Suspected Unapproved Parts Program Office, AVR-20, telephone (703) 661-0580, Fax (703) 661-0113.

Part No.: DF054-320

Serial Nos.: F2380, F2381, F2393, F2394, F2573, F2574, F2575, F2672, F2784, F2785, F2786, F2787, F2843, F2844, F2845, F2846, F2882, F2883, F2884, F2885, F2886, F2887, F2926, F2927, F2928, F2972, F2973, F3000, F3001, F3002, F3003, F3399, F3410, F3437, F3513, F3514, F3577, F3578, F3593, F3640, F3641

Part No.: DF054-321

Serial Nos.: F1122, F2423, F2424, F2482, F2491, F2565, F2566, F2567, F2576, F2577,

F2578, F2676, F2702, F2703, F2718, F2719, F2747, F2748, F2757, F2758, F2888, F2889, F2890, F2929, F2930, F2931, F2932, F2974, F2975, F2976, F2977, F2978, F2979, F3300, F3352, F3369, F3370, F3400, F3411, F3438, F3439, F3515, F3516, F3517, F3594, F3642, F3643, F3644, F3647, F3654, F3655, F3684, F3685

Part No.: DF054-324

Serial Nos.: F2395, F2396, F2416, F2891, F2933, F2934, F3118, F3164, F3165, F3176, F3253

Part No.: DF054-325

Serial Nos.: F2377, F3100, F3101, F3120, F3132, F3133, F3154, F3155, F3177, F3353

Part No.: DF054-334

Serial Nos.: F2406, F2407, F2417, F2418, F2579, F2580, F2675, F2892, F2951, F2952, F2980, F2981, F2982, F2983, F3062, F3119, F3260, F3301, F3330, F3354

Part No.: DF054-335

Serial Nos.: F2378, F2379, F2410, F2411, F2490, F2552, F2665, F2788, F2893, F2984, F2985, F3121, F3134, F3166, F3167, F3168, F3178, F3435

Part No.: DF060-501

Serial Nos.: F1203, F1207, F2778, F3147, F3546, F3547

Part No.: DF060-502

Serial Nos.: F1206, F2389, F2469, F2877, F3429, F3548, F3549

Part No.: DF060-507

Serial Nos.: F724, F2468, F2997

Part No.: DF060-508

Serial Nos.: F2992

Part No.: DF061-501

Serial Nos.: F1117, F2878, F2999, F3358, F3552

Part No.: DF061-502

Serial Nos.: F2471, F2879, F3149, F3153, F3359, F3550, F3551

Part No.: DF061-507

Serial Nos.: F791, F2470, F2572, F2782, F2783

Part No.: DF062-507

Serial Nos.: F2392, F2504, F2505, F2506, F2507, F2508, F3398, F3624

Part No.: DF063-502

Serial Nos.: F3245, F3630

Part No.: DF063-507

Serial Nos.: F3050, F3246

Part No.: DF063-508

Serial Nos.: F3051, F3052, F3053, F3631

Part No.: DF064-501

Serial Nos.: F3247, F3635, F3636

Part No.: DF064-502

Serial Nos.: F3235, F3236

Part No.: DF064-508

Serial No.: F3244

Part No.: DF064-509

Serial Nos.: F3054, F3248

Part No.: DF064-510

Serial Nos.: F3233, F3249, F3250

Part No.: DF0726001-10

Serial Nos.: F2400, F2401, F2674, F2706, F2731, F2732, F2863, F2864, F2898, F2899, F3371, F3401, F3412, F3440, F3542, F3543

Part No.: DF0726001-12

Serial Nos.: F2707, F2821, F3005, F3006

Part No.: DF0726001-15

Serial Nos.: F3137, F3402, F3413, F3441

Part No.: DF0726001-16

Serial Nos.: F2708, F3007, F3063, F3099

Part No.: DF0726001-17

Serial Nos.: F1087, F2459, F2461, F2518, F2519, F2556, F2606, F2607, F2608, F2609, F2610, F2677, F2696, F2776, F3179, F3180, F3197, F3198, F3216, F3217, F3255, F3256,

F3275, F3276, F3302, F3303, F3346, F3414, F3415, F3442, F3443, F3444, F3445, F3446, F3518, F3519, F3596, F3597, F3598, F3663, F3665, F3666

Part No.: DF0726001-18

Serial Nos.: F2460, F2496, F2520, F2521, F2563, F2611, F2612, F2613, F2614, F2678, F2697, F3138, F3181, F3199, F3200, F3449, F3520, F3521, F3599, F3648, F3649

Part No.: DF0726001-19

Serial No.: F2900

Part No.: DF0726001-20

Serial No.: F3008

Part No.: DF0726001-22

Serial Nos.: F674, F2709, F2710

Part No.: DF0726001-24

Serial Nos.: F2462, F2463, F2497, F2522, F2523, F2524, F3218, F3219, F3220, F3265, F3266, F3304, F3305, F3348, F3349, F3447, F3448, F3450, F3564, F3571, F3583, F3584, F3600, F3601, F3667, F3668, F3711, F3712, F3713

Part No.: DF0726001-9

Serial Nos.: F2604, F2605, F2664, F2729, F2730, F2799, F2800, F2861, F2862, F2966, F2971, F3098, F3139, F3182, F3331, F3332, F3347, F3372, F3432, F3451, F3452, F3522

Part No.: 104-920018-3

Serial No.: F2639

Part No.: DF1200065-1

Serial No.: F3185

Part No.: DF1200065-10

Serial Nos.: F3016, F3089

Part No.: DF1200065-12

Serial Nos.: F1118, F2427, F2428, F2464, F2465, F2532, F2533, F2534, F2535, F2588, F2589, F2590, F2591, F2646, F2654, F2720, F2721, F2722, F2723, F2759, F2769, F2789, F2916, F2917, F2918, F2919, F2936, F2937, F2967, F2968, F3017, F3018, F3019, F3020, F3084, F3156, F3157, F3334, F3335, F3339,

F3418, F3461, F3462, F3498, F3504, F3505, F3538, F3539, F3554, F3607, F3608, F3650, F3660, F3675, F3676, F3677

Part No.: DF1200065-13

Serial Nos.: F2492, F2537, F2538, F2539, F2555, F2568, F2592, F2593, F2647, F2648, F2685, F2724, F2725, F2726, F2770, F2894, F2895, F2920, F2921, F2922, F2953, F2954, F3021, F3022, F3023, F3085, F3086, F3186, F3187, F3269, F3280, F3281, F3296, F3297, F3340, F3341, F3392, F3419, F3463, F3464, F3465, F3472, F3529, F3530, F3573

Part No.: DF1200065-2

Serial No.: F3503

Part No.: DF1200065-23

Serial Nos.: F954, F1032, F1042, F1043, F1045, F1046, F1136, F2397, F2398, F2399, F2429, F2430, F2494, F2495, F2594, F2595, F2596, F2597, F2598, F2686, F2693, F2771, F2790, F2791, F2792, F2793, F2832, F2833, F2834, F2835, F2836, F2865, F2866, F2867, F2868, F2869, F2870, F2956, F2957, F2958, F2998, F3075, F3076, F3077, F3078, F3270, F3271, F3282, F3283, F3284, F3285, F3286, F3287, F3288, F3311, F3312, F3313, F3314, F3345, F3365, F3366, F3388, F3389, F3390, F3391, F3393, F3394, F3395, F3420, F3466, F3467, F3468, F3469, F3470, F3471, F3555, F3556, F3566, F3567, F3572, F3579, F3580, F3581, F3582, F3656, F3657, F3658, F3686, F3687, F3688, F3689

Part No.: DF1200065-24

Serial Nos.: F961, F1048, F1054, F1055, F1062, F1132, F1140, F2564, F2599, F2600, F2601, F2602, F2603, F2687, F2704, F2705, F2727, F2728, F2760, F2794, F2795, F2796, F2837, F2838, F2839, F2840, F2841, F2842, F2871, F2872, F2873, F2874, F2875, F2876, F2896, F2897, F2938, F2939, F2969, F2970, F3079, F3080, F3094, F3095, F3158, F3159, F3201, F3202, F3207, F3208, F3209, F3210, F3267, F3268, F3289, F3298, F3315, F3342, F3343, F3344, F3344A, F3360, F3361, F3362, F3363, F3407, F3408, F3423, F3428, F3473, F3474, F3475, F3476, F3477, F3478, F3479, F3480, F3531, F3532, F3609, F3610, F3611,

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Part No.: DF1200065-25

Serial Nos.: F1160, F2797, F2798, F3116

Part No.: DF1200065-3

Serial Nos.: F1116, F2425, F2451, F2493, F2536, F2557, F2558, F2562, F2581, F2582, F2583, F2955, F3011, F3117, F3170, F3171, F3225, F3481, F3499, F3500, F3501, F3540, F3541, F3545, F3615, F3616

Part No.: DF1200065-4

Serial Nos.: F2426, F2452, F2529, F2530, F2531, F2584, F2585, F2586, F2587, F2768, F3012, F3333, F3338, F3357, F3364, F3377, F3421, F3422, F3482

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Serial Nos.: F3036, F3039, F3040, F3041

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Part No.: DF301-501

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Part No.: DF302-2

Serial Nos.: F3047, F3048, F3049, F3634

Part No.: DF304-1

Serial Nos.: F2472, F2880, F2881, F2994, F2993, F3628

Part No.: DF304-2

Serial Nos.: F2473, F2548, F2549, F2571, F2779, F2995, F2996, F3699

Part No.: DF307-1

Serial Nos.: F2390, F2391, F2474, F2481, F2509, F2780, F2781

Part No.: DF307-2

Serial Nos.: F2475

Part No.: DF308-1

Serial Nos.: F728, F3058, F3067, F3083, F3146

Part No.: DF308-2

Serial No.: F729

Part No.: DF35-9009-1S

Serial Nos.: F1095, F1186, F1187, F2476, F2477, F2478, F2479, F2510, F2511, F2512, F2513, F2514, F2629, F2630, F2631, F2671, F2689, F2692, F2755, F2777, F2819, F2914, F2915, F2949, F2950, F2988, F2989, F2990, F2991, F3032, F3033, F3034, F3035, F3068, F3069, F3070, F3071, F3142, F3143, F3148, F3172, F3173, F3203, F3204, F3324, F3325, F3403, F3404, F3424, F3425, F3490, F3491, F3492, F3536, F3544, F3620, F3621, F3671, F3672, F3714, F3715

Part No.: DF35-9009-2S

Serial Nos.: F1096, F1188, F1190, F2431, F2432, F2515, F2516, F2517, F2632, F2633, F2634, F2635, F2636, F2637, F2663, F2744, F2745, F2765, F2766, F2767, F2810, F2811, F2812, F2813, F2814, F2815, F2816, F2817, F2822, F2823, F2824, F2825, F2947, F2948, F3205, F3206, F3230, F3231, F3257, F3258, F3259, F3261, F3321, F3322, F3323, F3405, F3406, F3426, F3427, F3493, F3494, F3495,

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Part No.: DF35-921242-11

Serial Nos.: F2649, F2655, F3144, F3145, F3174, F3175

Part No.: DF35-921242-12

Serial Nos.: F2433, F2434

Part No.: DF361-507

Serial No.: F1126

Part No.: DF461-705

Serial Nos.: F1105, F1108, F1109, F1110, F1111, F2749, F2750, F2751, F2752, F2986, F2987, F3135, F3136, F3152, F3433, F3434, F3595, F3637, F3638, F3639

Part No.: DF461-712

Serial Nos.: F2445, F2446, F2550, F2551, F3553

Part No.: DF461-713

Serial Nos.: F2447, F2448, F2480, F2681, F3272

Part No.: DF461-714

Serial Nos.: F2439, F2440, F2488, F2489, F2682, F3072

Part No.: DF461-715

Serial Nos.: F2437, F2438, F2443, F2444, F2683, F3073, F3074

Part No.: DF461-720

Serial Nos.: F2441, F2442, F3081, F3082

Part No.: DF461-722

Serial Nos.: F2449, F2699, F2700, F2701

Part No.: DF461-723

Serial Nos.: F2450, F2553, F2680

Part No.: DF5026102-3

Serial Nos.: F1224, F2385, F2386, F2403, F2408, F2412, F2413, F2435, F2436, F2457, F2458, F2483, F2484, F2500, F2501, F2540, F2541, F2542, F2543, F2623, F2624, F2625, F2659, F2660, F2694, F2711, F2738, F2739, F2740, F2774, F2775, F2818, F2847, F2848, F2849, F2850, F2851, F2852, F2853, F2854,

F2855, F2908, F2909, F2910, F2911, F2940, F2941, F2959, F2960, F3009, F3024, F3025, F3026, F3096, F3097, F3150, F3290, F3291, F3292, F3293, F3294, F3295, F3316, F3317, F3328, F3329, F3378, F3379, F3380, F3381, F3382, F3383, F3561, F3562, F3563, F3696, F3697, F3698, F3708, F3709, F3710

Part No.: DF5026102-4

Serial Nos.: F1079, F1216, F2387, F2388, F2409, F2414, F2415, F2485, F2486, F2487, F2502, F2503, F2544, F2545, F2546, F2547, F2626, F2627, F2628, F2661, F2662, F2695, F2741, F2742, F2743, F2805, F2806, F2807, F2808, F2809, F2856, F2857, F2858, F2859, F2860, F2912, F2913, F2923, F2924, F2925, F2935, F2942, F2943, F2961, F2962, F3055, F3056, F3057, F3189, F3190, F3227, F3229, F3318, F3319, F3320, F3226, F3228, F3384, F3385, F3386, F3387, F3483, F3484, F3485, F3486, F3487, F3488, F3489, F3533, F3534, F3535, F3559, F3560, F3570, F3574, F3575, F3576, F3617, F3618, F3619

Part No.: DF823343-5

Serial Nos.: F2453, F2820, F3151, F3651

Part No.: DF823343-6

Serial Nos.: F2454, F2615, F2616, F2670, F2801, F3064, F3115, F3140, F3169

Part No.: DF823362-1

Serial Nos.: F1070, F2419, F2617, F2656, F2717, F3409, F3416, F3417, F3453, F3454, F3588, F3652

Part No.: DF823362-2

Serial Nos.: F898, , F2384, F2420, F2679, F3336, F3373, F3374, F3502

Part No.: DF823362-3

Serial Nos.: F1218, F2382, F2455, F2466, F2467, F2498, F2618, F2619, F2657, F2667, F2668, F2669, F2673, F2688, F2691, F2715, F2716, F2733, F2734, F2735, F2753, F2754, F2756, F2772, F2773, F2826, F2827, F2828, F2901, F2902, F2903, F2904, F2944, F2945, F2963, F3010, F3027, F3028, F3029, F3090, F3091, F3211, F3212, F3221, F3222, F3254, F3277, F3306, F3307, F3308, F3524, F3525, F3526, F3565, F3585, F3586, F3587, F3602, F3603, F3703, F3704

Part No.: DF823362-4

Serial Nos.: F1119, F1127, F1213, F1221, F2383, F2402, F2421, F2422, F2456, F2499, F2525, F2526, F2527, F2528, F2620, F2621, F2622, F2640, F2641, F2642, F2643, F2658, F2690, F2736, F2737, F2802, F2803, F2804, F2829, F2830, F2831, F2905, F2906, F2907, F2946, F2964, F2965, F3162, F3030, F3031, F3092, F3093, F3163, F3183, F3223, F3251, F3252, F3224, F3278, F3279, F3309, F3310, F3350, F3351, F3375, F3376, F3455, F3456, F3457, F3458, F3459, F3527, F3528, F3604, F3605, F3606, F3653, F3669, F3670, F3705, F3706, F3707

Part No.: DF823362-5

Serial Nos.: F3184, F3460

Part No.: DF823362-6

Serial Nos.: F2638

Part No.: 95-920011-13

Serial Nos.: F2404, F2405, F2559, F2560, F2561, F2569, F2650, F2651, F2652, F2761, F2762, F3004, F3060, F3061

Part No.: 95-920011-14

Serial Nos.: F2570, F2684, F2698, F2763, F2764, F3106

Part No.: B0803-1

Serial No.: F3107

Part No.: B0804-1

Serial No.: F3102

Part No.: B2811-1

Serial No.: F3103

Part No.: B2812-1

Serial No.: F3108

Part No.: B4201-1

Serial No.: F3109

Part No.: B4202-1

Serial No.: F3355

Part No.: B5013-1

Serial No.: F3326, F3356

Part No.: B5014-1

Serial Nos.: F3160, F3327, F3430, F3431

Part No.: B6111-1

Serial Nos.: F3104, F3161

Part No.: B6112-1

Serial Nos.: F3105, F3122

Part No.: P4612-1

Serial Nos.: F2554, F3123, F3193, F3194

Part No.: P4612-2

Serial Nos.: F3110, F3508, F3509, F3589, F3590, F3700, F3718

Part No.: P4612-4

Serial Nos.: F3678

Part No.: P4612-5

Serial Nos.: F3113, F3114, F3124

Part No.: P4613-1

Serial Nos.: F3125, F3195, F3196, F3272, F3497, F3679, F3680, F3681, F3719

Part No.: P4613-2

Serial Nos.: F3506, F3507, F3510, F3511

Part No.: P4613-3

Serial Nos.: F3111, F3112, F3591

Part No.: P4613-4

Serial No.: F3126

Part No.: P4614-1

Serial Nos.: F3127, F3128, F3130, F3273, F3274, F3299, F3436, F3682, F3683

Part No.: P4614-2

Serial Nos.: F3129, F3131, F3232, F3367, F3368

Part No.: P4615-1

Serial Nos.: F3213

Part No.: P4615-2

Serial Nos.: F3214, F3215, F3512, F3592

Part No.: P4615-3

Serial No.: F3191

Part No.: SA3426
Serial No.: F3192

Part No.: SA4251
Serial No.: F3557

AIRPLANES

BEECH

Beech; Model G33; Bonanza; Main Landing Gear Loose Hardware; ATA 3230

During an annual inspection, a technician discovered two of the four right main landing gear retraction brace (P/N 35-815155-610) pivot pin retainer screws were loose enough to be rotated by hand.

The technician removed the screws (P/N AN515-8R8), and found they were severely worn. The submitter speculated the excessive thread wear was caused by the shear action of the pivot pin. The manufacturer upgraded these screws (P/N AN525R-832R8), and they now have a shoulder that provides higher shear strength. The submitter found this problem on many Bonanza through Duke models.

Part total time-4,240 hours.

Beech; Model T-34; Mentor; Fuel Leak; ATA 7310

This aircraft had a Teledyne Continental Model (TCM) IO-550-B engine installed in accordance with a Supplemental Type Certificate (STC).

The pilot reported noticing a slight fuel odor in the cockpit followed by engine power loss.

An inspection revealed a fuel leak at the "B" nut on the fuel pressure/flow line at the rear baffle in the engine compartment. Also,

the "AN" fitting in the fuel flow divider for the fuel flow/pressure gauge line did not contain an orifice for the restriction of fuel flow to the cockpit. The restrictor is installed to reduce gauge fluctuations, limit the pressure in the fuel flow/pressure line, limit the fuel loss in case of line or gauge failure, and reduce the hazard of fire.

There are several STC's which allow the installation of IO-550 or IO-520 series engines. These STC's are applicable to Beech Model T-34; Cessna Models 182, 188, 206, 207, and 210; and other original equipment manufacturer makes and models. Many of these aircraft utilize the pressure-type fuel flow gauge. It was recommended that suspected aircraft be inspected to ensure the TCM (P/N 631658) metered fuel pressure connector is installed in the flow port on the flow divider when a pressure-type fuel flow gauge is used. It should be noted that part number 631658 is the base number, and some installations use a suffix to the base number. It is difficult to visually identify this part because the exterior looks no different than any 90-degree elbow connector. However, the difference is the presence or absence of the restrictor orifice inside the fitting.

Part total time not applicable.

Beech; Model A-36; Bonanza; Defective Exhaust System; ATA 7810

The pilot reported that during flight he detected the odor of engine exhaust gases and heard an abnormal noise when the cabin heat was used.

An examination of the engine exhaust system revealed that the heat muff had a 1-inch diameter hole and signs of extreme deterioration. The muffler (P/N 701-21) was also damaged. The submitter stated age may have contributed to this defect. It is recommended that maintenance personnel check the exhaust system components thoroughly during scheduled inspections.

Part total time not reported.

Beech; Model 58; Baron; Defective Nose Landing Gear Indicator; ATA 3260

The aircraft was delivered to maintenance with a pilot report that the nose landing gear pointer did not indicate the nose gear was down and locked.

An examination of the nose gear indicating system disclosed that the indicator pointer linkage was not connected. The pointer was reattached, the mechanical pointer was adjusted in accordance with the manufacturer's data, and a test of the system was satisfactory. The submitter of this report did not give the circumstances or cause for this defect.

Part total time not reported.

Beech; Model 58; Baron; Nose Landing Gear Failure; ATA 3230

When the landing gear was selected to the "down" position, the nose gear failed to lock in the "down" position.

The nose gear cleared the gear well but did not lock down. An investigation disclosed that the rod-end (P/N HMX5FG), which attaches the actuator to the nose gear strut, broke. No cause or cure was given for this defect. In order to conduct a thorough inspection, the submitter recommends removing the paint from the gear linkage attachment.

Part total time not reported.

Beech; Model 58P; Baron; Engine Induction System Component Failure; ATA 7160

During flight, the induction system boot (P/N 639660-13) became disconnected from the induction tube at the intercooler outlet.

An investigation disclosed that the worm clamp, used to secure the boot, had been installed improperly. The clamp was not fully over the ridge on the induction tube. The boot slipped off of the induction tube during high manifold pressure operation. The report did not mention the result this defect had on the

flight operation. The submitter suggests that technicians be very observant when installing the induction system boots to ensure proper installation.

Part total time not reported.

Beech; Model 58TC; Baron; Improper Exhaust System Repair; ATA 7810

During an annual inspection, the technician noticed an engine mount on the right engine was "practically ground away."

A further inspection revealed the turbocharger exhaust stack (P/N 642067) was improperly repaired and would not fit without grinding on the engine mount (P/N 102-910026-131). Also, a major portion of the engine truss had been removed. Needless to say, this damage seriously compromised the structural security of the engine and was very costly to properly correct. Neither the aircraft maintenance records nor the aircraft owner could provide a clue concerning the origin of this damage.

Part total time not reported.

Beech; Model C90B; King Air; Chafing Wire Bundle; ATA 2460

While installing avionics equipment and wiring, a wire bundle was found chafing hard against the lower circuit breaker panel.

The wire bundle went to the copilot's circuit breaker panel and was chafing against the lower forward circuit breaker panel mount. (Refer to the following illustration.) The individual wires in the bundle had not yet chafed through the insulation due to the low number of operating hours. Another like aircraft was found, prior to this finding, with several of the individual wires chafed through the insulation. In this case, the aircraft had 150 hours of operating time. In both cases, it was necessary to reposition the wire bundle to provide sufficient clearance from the circuit breaker panel mount. The submitter recommends that all operators of like aircraft

check this area as soon as possible to prevent a very hazardous electrical failure and smoke in the cockpit.

Part total time-33 hours.



CHAFING POINT

Beech; Model C90; King Air; Main Landing Gear Failure; ATA 3213

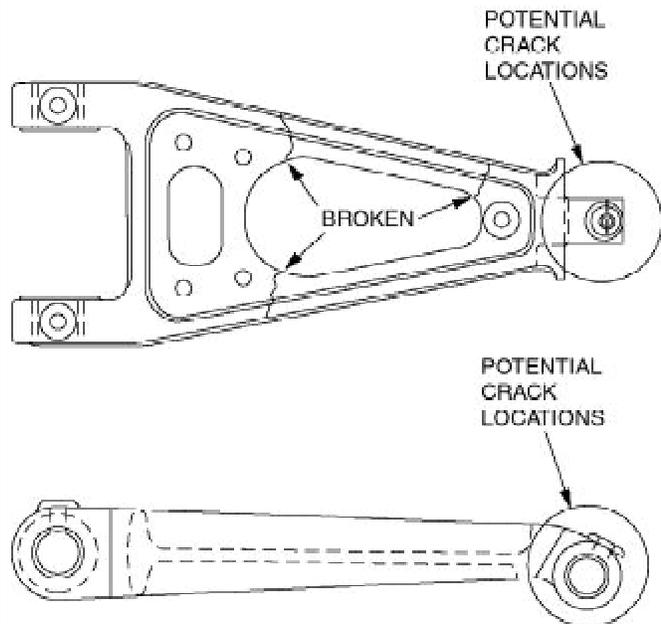
During an after-landing rollout, the aircraft pulled to the right and traveled off of the runway. There was no further aircraft damage or personal injury.

An inspection revealed that the right main landing gear upper torque knee (P/N 50-810021-4) broke and allowed the lower gear piston assembly to rotate and turn sideways. (Refer to the following illustration.)

Beech Service Bulletin (SB) 32-3134 addresses this subject and was complied with 5 months prior to this occurrence. This failure occurred at a different location than that shown in SB 32-3134. The submitter stated that the

manufacturer will soon issue steel replacement parts for the aluminum torque knee assembly.

Part total time-170 hours.



Beech; Model E90; King Air; Defect Elevator Trim Actuators; ATA 2730

During a phase inspection, both the left and right elevator trim actuators were found out of “free play” limits required by the manufacturer’s data.

The technician installed two new actuators using new bushings and bolts. After rigging, another “free play” check disclosed that the right actuator (P/N 50-524161-10-R) was within limits by .001-inch. The left actuator (P/N 50524161-11-R) exceeded the limits by .009-inch. Another overhauled actuator was installed in the left position, and it exceeded the limits during the “free play” check. The submitter recommends that all operators of like aircraft check the elevator trim actuators for “free play” whenever they are changed.

Part total time not reported.

CESSNA

Cessna; Model 172 (C172); Skyhawk; Defective Fuel Tank Sender; ATA 2842

During a postinspection engine runup, the left fuel gauge's indicating needle fluctuated between the full and empty indication.

The technician inspected the fuel indication system and discovered the left sender unit (P/N S3331-2) was defective. The sender was replaced, and the problem was corrected for a short time. However, the submitter has experienced a high incidence of this part's failure within a fleet of 53 Cessna 172's. This area deserves special attention during inspections.

Part total time-87 hours.

Cessna; Model 172 (C172); Skyhawk; Propeller Spinner Bulkhead Cracked; ATA 6113

During an inspection of a new aircraft with 50 total hours and prior to a "Phase I" inspection, the technician found damage to the aft bulkhead of the propeller spinner.

The aft propeller spinner bulkhead was broken at the first nut plate adjacent to one of the blade cutouts. Approximately a 1-inch piece of the nut plate strip was missing. That broken piece, still attached to the propeller spinner, was bent outward approximately 2 inches.

Part total time-50 hours.

Cessna; Model 172 (C172); Skyhawk; Worn Piston Pin; ATA 8530

During the course of changing the new aircraft's oil and oil filter, the technician discovered excessive amounts of aluminum in the old oil filter, and the piston pin plugs displayed excessive end wear.

The maintenance department sent a piece of the filter to Cessna and the engine manufacturer for analysis. The engine

manufacturer replaced the piston pin plugs (P/N LW-11775) with the old style piston pin plugs (P/N 60828).

Part total time-24 hours.

Cessna; Model 172 (C172); Skyhawk; Seat Assembly; ATA 2500

The pilot seat would not swing forward for access to the rear seats.

The technician stated the recline cylinder bolt in the "L" seat back fitting was loose. This allowed the seat back to remain in a position that was approximately 4 inches toward the reclined position when the full upright position was selected. A closer inspection revealed the "L" seat back attach fitting (P/N 0514215-8) was bent 2 inches aft.

According to Cessna, the part failure occurred because the part was improperly heat treated.

Part total time-39 hours.

Cessna; Model 172P; Skyhawk; Doorpost Bulkhead Crack; ATA 5210

During a 100-hour inspection, the mechanic discovered a crack in the left forward doorpost bulkhead (P/N 2413026-5).

The crack was located at the lower door hinge attachment point. The crack was approximately .5-inch long and traveled around the lower door hinge aft attachment bolt. The submitter's fleet of like aircraft is used for flight training and rental. The submitter stated this was the fifth such finding on like aircraft in the past 3 months.

Part total time-9,760 hours.

Cessna; Model 172P; Skyhawk; Excessive Control Yoke Play; ATA 2701

While complying with annual inspection requirements, the technician noticed excessive free play in the right control yoke.

Further investigation revealed the bracket assembly (P/N 0513360-2) control yoke pivot bolt holes were severely elongated. This allowed approximately 1 inch of fore-and-aft free play in the control yoke. It is wise to check this area for excessive wear at every opportunity.

Part total time-6,193 hours.

Cessna; Model R182; Skylane; Landing Gear Failure; ATA 3230

During a landing approach, the landing gear failed to extend fully when the pilot used both the normal and emergency systems. The pilot made a successful landing with the landing gear partially extended. The aircraft suffered only minor damage.

An investigation revealed the hydraulic system powerpack (P/N 9881624-1) reservoir (P/N 9881122-1) was out of fluid. There was evidence of hydraulic fluid leakage at the nose gear actuator and both of the main gear downlock actuators.

After the technician serviced the hydraulic system, the landing gear operated normally. The system's hydraulic reservoir does not have a dedicated volume of fluid for emergency hand pump operation. Therefore, when there is no fluid to operate the electric pump, there is none available for the emergency hand pump. This incident could have been prevented by maintaining the proper fluid level in the hydraulic reservoir and inspecting and repairing of the system.

Part total time-1,604 hours.

Cessna; Model 421 (C421); Golden Eagle; Fuel Line Leak; ATA 2820

While in flight, the pilot noted a vibration in the left engine, and the exhaust temperature gauge for the number 4 cylinder indicated zero. The pilot shut down the left engine, as a precaution, and continued to the home base destination without further incident.

An inspection of the left engine revealed the number 4 fuel injector broke at the ball end of

the fitting where the flared end was silver soldered. The total time of the part is unknown; however, the engine time since overhaul was 1,309 hours.

An inspection of the remaining injector fittings with a 10-power magnifier revealed no additional defects.

Part total time-1,309 hours.

Cessna; Model 425 (C425); Conquest; Failed Heater Coil; ATA 2140

The aircraft operator noticed that the cabin heat output was relatively low, and delivered the aircraft to the maintenance department for investigation.

The technician removed the auxiliary electric heater and discovered that two of the three heater coils were burned completely through where they attach to the wire harness post. The technician was unable to determine the specific cause of the coil failure.

When the heat output appears low, be alert to possible coil damage.

Part total time-4,300 hours.

GRUMMAN

Grumman; AA5-B (AA5); Tiger; Hydraulic Leak; ATA 2910

During an avionics installation, the technician noted the aluminum line (P/N 5403009-501) leading to the right brake was severely corroded and deeply pitted behind the instrument panel and side panel, and the hydraulic fluid was leaking.

The submitter stated the defroster duct located directly above and touching the brake line probably caused the corrosion. This duct was the old "scat type" design with cotton material and iron forming wire. The duct had become moist over time and had begun to deteriorate causing the rusty iron wire to poke through. When moist iron came in contact with

the aluminum, the dissimilar metals electrolytic process contributed to the excessive corrosion.

Since this problem has been noted in many other make and model aircraft that are fitted with the "old style" ducting, the submitter cautioned all technicians, pilots, and owners to be aware of this condition during inspections.

Part total time-1,258 hours.

GULFSTREAM

Gulfstream; G1159B (GIF2); G11B; Frozen Trim Wheel; ATA 2730

While in flight, the pitch trim disengaged prior to descent and the trim froze at the 1 degree noseup attitude position. The crew was unable to move the trim either electrically or manually; however, the pilot was able to make a safe landing.

An inspection revealed the roll-pin holes attaching the pilot's trim wheel (P/N HL6736-7) to the crossover torque tube assembly was worn, and allowed the indicator inner drive to rub against the bronze inner bushing. The parts fused together and prevented the trim wheel from moving.

The submitter stated this area is not covered by the inspection program, and the trim wheel is not opened for inspection.

Part total time-12,029 hours.

HOWARD

Howard; Model DGA-15P; Structural Corrosion; ATA 5310

This aircraft was manufactured in 1944. During the process of restoring this aircraft, the technician stripped the fuselage of all components. Under the fuel tanks, the technician discovered felt strips that are used to prevent the tank from chafing against the

lower structural tubing. After the technician removed the fuel tank and felt strips, he discovered severe pitting corrosion on the lower fuselage structural tubing.

If the fuel tank and felt strips are not removed, the corrosion is not noticed. The felt strips absorbed moisture and held it in contact with the structural tubing. If the same sort of felt material is used in this or other types of aircraft, it should be removed for a thorough inspection at the next opportunity. If not found and repaired, corrosion of this type can progress to the point of compromising the aircraft's structural integrity.

Part total time not reported.

Howard; Model DGA-15P; Defective Wood Joints; ATA 5300

This aircraft was manufactured in 1944. All of the wood joints, including the wings, flaps, ailerons, and cabin roof, were originally bonded with "Casein" adhesive (glue).

An inspection of the wood joints during a restoration process revealed that many of the joints were debonded and held in place only by the nails and fabric covering. In accordance with Advisory Circular 43.13-1B, Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair, all of these wood joints were repaired using "Resorcinol" adhesive. The structural repair manual for this aircraft calls for using "Casein" glue; however, this type of adhesive is no longer available.

The submitter recommends carefully inspecting all antique or older aircraft utilizing wood structural components for adhesive joint debonding. Many of these joints are not easily inspected due to their location and may require skin or fabric removal. Just remember, you bet your life on the primary aircraft structure, so it is a wonderful idea to make sure it still meets the original specifications.

Part total time not reported.

LEAR

Lear; Model 25B (LJ25); Learjet 25; Loss of Hydraulic Pressure; ATA 2910

While in flight, the pilot noticed a loss of hydraulic pressure and an uneventful, precautionary landing was accomplished by using the landing gear emergency extension system.

An inspection revealed a small hole in the pressure line leading from the right engine-driven hydraulic pump. The submitter also discovered a crack in the flange on the hard line (P/N 2307023-484) of the emergency hydraulic pump. The submitter speculates vibration caused the crack in the hard line. The line was installed only 3 years prior to this defect.

Part total time-1,600 hours.

Lear; Model 25G (LJ25); Learjet 25; Faulty O-Ring; ATA 2820

While en route, the flightcrew noticed the left RPM gauge was fluctuating. The power levers were adjusted and resulted in a reduction in RPM. The engine eventually lost power, and the pilot made a safe precautionary landing.

The technician discovered a fuel leak that was caused by a defective "O-ring" fitting on the main fuel line. After replacing the faulty "O-ring," the engine performed normally.

Part total time unknown.

Lear; Model 35 (LJ35); Learjet 35; Incorrect Bolt Installation in Nose Gear; ATA 3221

The nose gear door actuator rod attach point bolt (P/N AN24-30), which attaches to the nose strut, was incorrectly installed allowing the bolt to gouge the skin at frame 5, BS 160.77.

The bolthead should have been installed with the head facing outboard to maintain clearance with the skin. The gouge occurred when the bolt's threaded portion came in contact with the frame's skin.

The submitter noted the maintenance manual does not have a cautionary statement with regards to bolt installation. Since this is the same defect observed in six other similar aircraft, the submitter believes the maintenance manual should address this problem.

Part total time-5,207 hours.

Lear; Model 35 (LJ35); Learjet 35; Faulty Fuel Control Unit; ATA 7321

The pilot reported that above 30,000 feet the engine surged at all settings of the thrust levers. As the aircraft increased in altitude, the surging was more intense. At approximately 39,000 feet, the pilot reduced the power to idle, and the engine ceased to operate.

The technician inspected the aircraft and concluded that either the power lever pot or the torque motor caused the problem. He replaced the fuel control unit (P/N 3070800-3), the aircraft was test flown, and the problem did not reoccur.

In the event of an engine surge, the submitter suggests that the pilot switch the engine to the manual mode.

Part total time unknown.

Lear; Model 35 (LJ35); Learjet 35; Damaged Mach Trim Computer; ATA 2211

In flight, while descending from 24,000 feet to the assigned 18,000 feet, the aircraft made an uncommanded pitchup and returned to 24,000 feet. The pilot switched to the manual trim system, declared an emergency, and landed the aircraft without further incident.

The technician discovered the Mach trim computer circuit board mounted to the underside of the cabin floorboards was damaged. The previous day, a technician installed new carpet in the aircraft and accidentally drilled a fastener hole through the circuit board.

The submitter stated knowledge of the wiring and the location of the fluid lines is essential before any drilling is accomplished on an aircraft. This is especially true in the area of the floorboards.

Part total time not reported.

Lear; Model 35 (LJ35); Learjet 35; Corroded Hydraulic Line; ATA 2910

After the flap control valve was replaced, the technician conducted an operational check on the hydraulic system and noticed hydraulic fluid leaking from the system.

After a closer inspection, the technician discovered a pinhole located approximately 1 ½ inches from the end of the line at a 90-degree elbow of the line. The line appeared to be original equipment and was located above the wing and aft of the left main wheel well. Zinc chromate paint was evident on the line and the pinhole. The submitter stated the pinhole was caused by corrosion.

The submitter stated this aircraft displayed a pinhole in another 90-degree bend in the flap system's hydraulic line last year; therefore, this area warrants special attention during inspections.

Part total time-4,731 hours.

Lear; Model 35A (LJ35); Learjet 35; Wiring Problem; ATA 5270

The aircraft was brought to maintenance for compliance with Learjet Service Bulletin (SB) 35/36-52-10 which addresses the upper cabin door torsion arm assembly.

While inspecting the required areas listed in the SB, the technician noticed the sheathing on all the wires of the upper door latch pin switch were broken.

The Learjet wiring manual indicates these wires act as the ground for the "door unsafe light." With the wires broken, the pilot would not receive any warning that the two latch pins were unsafe.

The submitter stated normal wear from routine door cycling may have caused this defect. Since the "unsafe light" is affected, this area deserves close attention during inspections.

Part total time-7,338 hours.

Lear; Model 55 (LJ55); Learjet 55; Missing Drag Chute; ATA 2563

The pilot noticed the drag chute lid seemed loose during the preflight inspection. Since the pilot was the holder of an Inspection Authorization (IA), he re-secured the lid.

Following the next scheduled flight, the pilot noticed the drag chute was missing from the aircraft. Since nothing unusual happened during that flight, the pilot was uncertain when the drag chute departed the aircraft.

A Gates Lear technical representative examined the aircraft and found a discrepancy with the drag chute's locking ring and deployment assembly. The locking ring interfered with the round head rivets adjacent to the mechanism. The round head rivets were installed in error. Flush rivets should have been installed in their place. The maintenance department installed the proper rivets and replaced the aircraft's missing parts. The submitter notes the missing drag chute was factory installed 11 years ago.

Part total time unknown.

Lear; Model 60 (LJ60); Learjet 60; Mispositioned Clamp; ATA 2610

During routine maintenance, the right engine's fire warning system did not test correctly.

The technician discovered the hot section loop was not positioned properly in the retaining clamp which caused the element to break.

The submitter stated this maintenance facility replaced the same unit on another Learjet 60 due to the clamp opening and chafing the loop

in a similar fashion. The submitter recommends using extra caution during the installation of this unit.

Part total time-3,606 hours.

Lear; Model 60 (LJ60); Learjet 60; Hydraulic Leak; ATA 2750

The pilot reported that while in flight the aircraft lost hydraulic pressure. The pilot made a safe landing and took the aircraft to the maintenance department.

An inspection of the aircraft revealed that chafing caused a pinhole in the left flap actuator's hydraulic retract tube assembly (P/N 2307024-392). The chafing occurred when the flaps were cycled and the actuator piston rod attach bolt washer contacted the tube.

Part total time-239 hours.

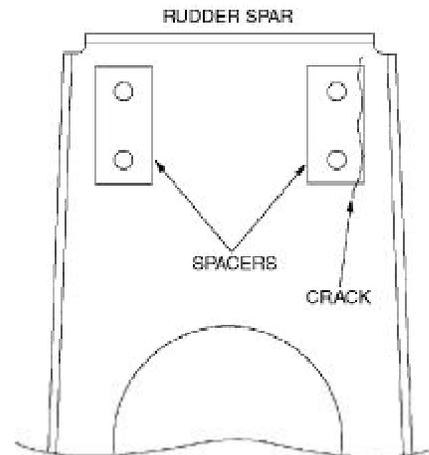
ROCKWELL

Rockwell; Commander (AC11); Grand Turismo; Cracked Rudder Spar; ATA 5541

During the annual inspection, the technician discovered the rudder spar (P/N 44228-3) was cracked on the edge of the aluminum spacer which is mounted on the underside of the top rudder hinge. (Refer to the following illustration.)

The submitter stated the crack originated as a result of flexing in that area. Under normal inspection practices, the area is difficult to see and may continue to go unnoticed if the rudder is not removed during other maintenance procedures.

Part total time-1,427 hours.



Rockwell; Commander (AC11); Grand Turismo; Wiring Problem; ATA 2400

The pilot reported this new aircraft had a pulsating oil temperature gauge and flickering instrument panel lights. The position light circuit breaker would not reset, and there appeared to be the sound of electrical interference (alternator sound) heard through the headset.

An inspection of the electrical system revealed numerous loose heavy gauge wires at the attachment position. There was no evidence that the lock-washers had been crushed. The technician noted that numerous circuit breakers were not securely fastened to the bus bar. Further inspection of other areas within the engine compartment revealed several loose wires associated with switching relays and other components. Additionally, a "wet cell" battery was installed instead of the proper "sealed" battery.

The submitter emphasized this is a new aircraft delivered with these installation errors.

Part total time-74 hours.

TWIN COMMANDER

Twin Commander; 680E (AC68); Super Commander; Gear Actuator Failure; ATA 3233

While in flight, the landing gear failed to operate normally. The pilot used an emergency extension procedure, and landed the aircraft without incident.

An inspection revealed the right main landing gear actuator cylinder (P/N EA1165) failed internally. The part was installed 6 years after it was received as new. The part had only 7.4 hours of service and three landings.

Part total time-7.4 hours.

HELICOPTERS

AMERICAN EUROCOPTER

American Eurocopter; Model BK 117B1; Tail Boom Structural Defect; ATA 5500

During a routine inspection, the technician discovered a crack in the tail boom frame.

The crack severed the structural frame 10L (P/N 105-30251.51-001). A manufacturer's representative inspected the tail boom and replaced the broken frame. The representative stated this damage may have resulted from excessive movement of the tail rotor pedals with the aircraft on the ground. Excessive ground movement of the pedals can cause stress and metal fatigue in the tail boom.

Part total time-8,345 hours.

American Eurocopter (Aerospatiale); Model 350B2; Ecureuil; Tail Rotor Spider Assembly Failure; ATA 6720

During flight, the aircraft lost tail rotor control. The pilot reported the tail rotor

pedals moved slightly; however, a successful run-on landing was made on a hard surface runway. There were no personal injuries, and the aircraft was not damaged.

An examination revealed the tail rotor rotating spider assembly (P/N 350A33-2129-00) was completely severed, and the tail rotor was being driven by the pitch change links. (Refer to the following illustration.) The spider assembly bearing (P/N 6010-2RS1MT33CA) apparently seized and cut through the rotating spider. American Eurocopter Mandatory Service Bulletin (SB) 05.00.29, dated 99-05, which deals with the tail rotor hub pitch change spider plate bearing check, was complied with 22 flight hours and 10 days prior to this failure. The rotating spider assembly was removed and sent to the manufacturer for further evaluation.

Part total time-869 hours.



BELL

Bell; Model 407; Tail Boom Crack; ATA 5500

The following information was furnished by the FAA, Rotorcraft Standards Office, ASW-643, located in Fort Worth, Texas.

During a postflight inspection, the technician discovered a crack in the tail boom (P/N 407-030-801-101).

It appeared that the crack initiated at the forward edge of the horizontal stabilizer attachment area. The FAA, Service Difficulty Program data base contains two additional reports of similar failures. This defect is somewhat similar to the cracking on Bell Model 206L series helicopters addressed by Airworthiness Directive (AD) 99-02-01.

This area deserves your full attention at every opportunity.

Part total time not reported.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

REVOLUTION

Revolution; Model Mini 500; Engine Failure; ATA 8500

The following information was furnished by the FAA Washington Dulles Flight Standards District Office, and the FAA Office of Accident Investigation. The information resulted from a fatal aircraft accident investigation, and it is published "as it was received."

An experimental amateur built Revolution 500 helicopter crashed into a heavily wooded area during an apparent autorotation following an engine sudden stoppage while on a pleasure flight. The aircraft was powered by a Rotax 582UL engine. As part of the accident investigation, the team conducted an engine teardown and examination. The pistons and cylinders revealed distinctive signature marks of a seizure of the pistons at the forward or "PTO end" of the engine. There are a number of different conditions or scenarios which could have, alone or in combination, caused such a seizure. The National Transportation

Safety Board (NTSB) investigation is continuing to examine those scenarios, and no final determination has been made at this time regarding accident causal factors.

During the examination, it was noted that both of the cylinder head ports provided for a cylinder head venting tube were blocked with threaded plugs. Rotax Service Information document SI 9UL 91-E, titled "Cooling Circuit for Engine Installation with Spark Plugs Up" provides information to allow the engine installer to remove one of these plugs and complete the necessary plumbing to provide a cooling system the engine factory describes as appropriated to the installation.

The Rotax representative stated that factory experience indicated the importance of utilizing a cylinder head venting tube. According to their experience, in the many recreational applications for this engine, it is common for the engine to experience varying pitch attitudes during operation. They indicate that with one end of the engine higher than the other, voids can be created in the liquid coolant flow within the head, creating gas spaces that can steam and result in a gas embolus reaching the coolant pump as the engine pitch attitude changes, resulting in a disruption of coolant pump effectiveness as the bubble reaches the impeller. They state the end result of such a situation can be uneven cooling of a cylinder, possibly exacerbated by a rapid temperature change when relatively cooler fluid finally reaches the cylinder. Their experience is that this rapid temperature variation can result in a seizure of the affected piston and cylinder, and a sudden engine stoppage.

The kit manufacturer, Revolution, addresses this situation by the installation of a tee fitting at the coolant port at the mid-point of the cylinder head. Their assembly instructions warn that the builder must install the tee fitting at or above the height of the cylinder head to insure that accumulated gasses in the head have an escape path. Revolution has indicated that there is no evidence, in their operational experience with this or earlier installations, that this configuration has

resulted in any kind of a problem with seizures. They state that the design of their cooling system positions the system's highest point in a manner that eliminates the need for the cylinder head venting tube called for by the engine manufacturer, and results in a better cooling configuration for this particular installation.

Since this aircraft is not type certificated by the FAA, there is no way for the agency to determine the effectiveness of either of the cooling system configurations discussed. With that in mind, it is recommended that the kit builders make themselves familiar with the cooling system configurations described in both the assembly instructions provided by Revolution and those in Rotax SI 9 UL 91-E, titled "Cooling Circuit for Engine Installation with Spark Plugs Up." This will allow the builder to make an informed decision regarding the appropriate configuration for the aircraft being completed.

POWERPLANTS AND PROPELLERS

TELEDYNE CONTINENTAL

Teledyne Continental; Model A65-8; Piston Pin Failure; ATA 8520

Information for the following article was furnished by the FAA Aircraft Certification Office located in Atlanta, Georgia.

This engine was installed in a Luscombe Model 8A aircraft. During flight, the engine began to run rough and misfire. The pilot made an off-airport landing, and he and a passenger received minor injuries

An accident investigation revealed the number 4 piston pin failed. After further examination, they determined that all four piston pins were improperly manufactured.

A metallurgical analysis disclosed the piston pins were manufactured from a "drawn tube of free-machining mild steel." This material had manganese sulfide stringer inclusions running axially which acted as initiating sites for multiple fatigue failures. The bore of the piston pins was not machined and showed evidence of scoring. The scoring occurred during manufacture as a result of "pick-up" on the mandrel used during the tube-drawing process.

The engine manufacturer was contacted and provided evidence that their design process has not changed since 1956. This design process does not use the procedure previously described. The manufacturer recommends replacement of the piston pins, as well as other components, during engine overhaul. Also, they recommend that the piston pins and plugs be removed to inspect the inside bore of the piston pins for a smooth surface. With a number 2 file, check the piston pin for surface hardness on the end of the pin (nonoperating surface). A number 2 file should slide but not score the end of the pin.

If any piston pins are found which are suspected of being improperly manufactured, one should remove them from service and replace them with proper parts.

The FAA requests that FAA Form 8010-4, Malfunction or Defect Report, be submitted for each improper part found. The form should list all pertinent information including the part manufacturer, if known.

Part total time-approximately 1,101 hours.

AIR NOTES

ALLIED SIGNAL TURBOCHARGER

An article in the April 1999 edition of this publication addressed excessive thrust bearing wear. On April 2, 1999, Allied Signal issued

Service Advisory (SA) SA99-01 concerning the following information.

SA99-01 states, "Some Model TH08A turbochargers, manufactured between April 1997 and December 1998, have experienced premature thrust bearing wear."

Three Model TH08A turbochargers have been returned to the manufacturer due to premature and excessive wear of the thrust bearing. A worn thrust bearing can result in the compressor and/or turbine wheel rubbing against the turbocharger housing. This condition, if not corrected, could result in a progressive failure of the turbocharger and loss of engine intake manifold pressure.

SA99-01 lists the turbocharger part numbers, serial numbers, engine model, and aircraft applicability.

Please note that SA99-01 applies to both factory-new turbochargers (with black nameplates) and factory-rebuilt turbochargers (with red nameplates).

For further information and to obtain a copy of SA99-01, you may call Allied Signal Turbocharging Systems, Product Safety and Integrity, at (310) 517-1038.

LEAKAGE OF FLAMMABLE FLUIDS BEHIND THE INSTRUMENT PANEL

Information for the following article was furnished by the FAA Aircraft Certification Office, ACE-118W, located in Wichita, Kansas.

The FAA consistently receives reports of flammable fluid line failures behind the instrument panel on single- and multiengine, propeller-driven aircraft. This area is very congested and inspection is difficult. Therefore, the FAA is considering optional methods of ensuring adequate airworthiness of flammable fluid systems and electrical systems.

In the meantime, operators, maintenance personnel, and inspectors are encouraged to maintain necessary vigilance of all systems behind the instrument panel on single- and multiengine, propeller-driven aircraft.

Part total time not applicable.

AIRWORTHINESS DIRECTIVES (AD's) ISSUED IN MARCH 1999

97-05-03; R1; AlliedSignal Avionics; Appliance: GNS-XLS and GNS-XL global positioning systems (GPS)

99-01-06; British Aerospace; Jetstream 3101

99-01-07; British Aerospace; Jetstream 3101

99-05-07; Bell; Rotorcraft: 214B and 214B-1

99-05-08; McDon. Doug. Heli.; Rotorcraft: MD-900

99-05-09; Piper; PA-23-235, PA-23-250, PA-24-180, PA-24-250, PA-24-260, PA-28-140, PA-28-150, PA-28-160, PA-28-180, PA-28-181, PA-28-235, PA-28-201T, PA-28R-201T, PA-28RT-201T, PA-32-260, PA-32-300, PA-32-301, PA-32R-300, PA-32RT-300, PA-32R-301, PA-34-200T, and PA-34-220T

99-05-13; Raytheon; B17L, SB17L, B17B, B17R, C17L, SC17L, C17B, SC17B, C17R, SC17R, D17A, D17R, D17S, SD17S, E17B, SE17B, and E17L (See AD for additional models.)

99-05-14; Eurocopter France; SA.315B, SA.316B, SA.316C, SA.319B, and SE.3160

99-06-01; Piper, The New; PA-31, PA-31-300, PA-31-325, PA-31-350, PA-31P-350

99-06-02; Fairchild; SA226-AT, SA226-TC, SA226-T, SA226-T(B), SA227-TT, SA227-TT(300), SA227-AC, SA227-AT, SA227-BC, and SA227-CC/DC

99-06-03; Eurocopter France; Rotorcraft: AS-365N, N1, and N2

99-06-04; Eurocopter France; Rotorcraft: AS 332C, L, L1, and L2

99-06-05; Pilatus; PC-12 and PC-12/45

99-06-15; PL; Bell; Rotorcraft: 407

99-02-15; Avions Pierre Robin; R2160

99-03-10; Agusta S.P.A.; Rotorcraft: A109E

99-04-15; Porsche; Engine: PFM3200N01, N02, and N03 Reciprocating

99-06-11; British Aerospace; HP137 Mk1, Jetstream Series 200, Jetstream 3101, and Jetstream 3201

99-06-12; British Aerospace; HP137 Mk1, Jetstream Series 200, Jetstream Models 3101 and 3201

99-07-01; Sikorsky; Rotorcraft: S-76C

99-07-02; Eurocopter France; Rotorcraft: SA 330F, G, and J, AS 332C, L, L1, and L2

99-07-04; Williams International; Engine: FJ44-1A turbofan

99-07-07; Eurocopter France; Rotorcraft: SA 330J

99-07-17; PL; Robinson; Rotorcraft: R22

99-07-18; PL; Robinson; Rotorcraft: R44

99-07-08; Eurocopter France; Rotorcraft: SA 315B

99-07-09; British Aerospace; Jetstream Model 3201

99-07-10; Indust. Aero. E Mecc.; Piaggio P-180

SUSPECTED UNAPPROVED PARTS (SUP) SEMINAR

As announced in previous editions of the Alerts, the Designee Standardization Branch, AFS-640, is once again presenting the Suspected Unapproved Parts (SUP) seminar. A schedule of the seminars and information for requesting a SUP seminar in your area is listed in this article.

Seminar dates will be announced in the Alerts, the Designee Update newsletter, and on the Internet under FedWorld.gov. You may access the FedWorld BBS directly at (703) 321-3339. You may access the Alerts through the Internet, using the Regulatory Support Division, AFS-600, "HomePage" at the following address.

<http://www.mmac.jccbi.gov/afs/afs600>

The seminar will discuss the following:

- 1.** Introduction to the policy of the Suspected Unapproved Parts Program Office, AVR-20.
- 2.** What is an approved part/unapproved part?
- 3.** How can approved parts be produced?
- 4.** What is a suspected unapproved part?
- 5.** How is a suspected unapproved part reported in accordance with FAA Order 8120.10A, Suspected Unapproved Parts Program, and utilizing FAA Form 8120-11, Suspected Unapproved Parts Notification?
- 6.** How do you determine the status of parts?
- 7.** What is the procurement process?
- 8.** How do you use the Internet and FedWorld to find a list of unapproved parts?

The cost of this 1-day, 8-hour seminar is \$60. The seminar may be used for the Inspection Authorization (IA) renewal training requirement specified in Title 14 of the Code of Federal Regulations (14 CFR) part 65, section 65.93(a)(4). Beginning in October 1999, the cost of these seminars will increase to \$65.

The seminar is open to the aviation industry. Anyone wishing to attend may telephone (405) 954-0138. Payment is required in advance by using VISA, MasterCard, or a check.

When scheduling attendance, please reference the seminar number.

**SCHEDULE FOR
SUSPECTED UNAPPROVED PARTS (SUP)
SEMINARS**

<u>Seminar No.</u>	<u>1999</u>	<u>Location</u>
759915	May 12	Miami, FL
759916	May 13	Miami, FL
759917	Jun 9	Helena, MT
759918	Jun 10	Helena, MT
759919	Jun 23	Minneapolis, MN
759920	Jun 24	Minneapolis, MN
759928	Jul 14	Portland, ME
759921	Aug 11	San Diego, CA
759922	Aug 12	San Diego, CA
759923	Aug 25	Denver, CO
759924	Aug 26	Denver, CO
759925	Sep 15	Little Rock, AR
759926	Sep 16	Little Rock, AR

If you require an ADDITIONAL SUP seminar, please write to: FAA, ATTN: AFS-640, P.O. Box 25082, Oklahoma City, OK 73125. Depending on the availability of AFS-640 personnel, the requests for additional SUP seminars may be authorized. The registration process is the same as that previously discussed in this article. If you have specific questions regarding an ADDITIONAL SUP seminar, please contact Elmer Hunter at (916) 773-2927.

CHANGES TO THIS PUBLICATION

We have created a new Internet web site which includes an electronic version of FAA Form 8010-4, Malfunction or Defect (M or D) Report. You may use the electronic version to send M or D reports to us. The

web site also includes a search function for older copies of the Alerts. The address for this web site is:

<http://www.mmac.jccbi.gov/alerts/>

SUBSCRIPTION FORM

Many of our readers voiced their concern when, due to a budget reduction, it was necessary to stop printing and distributing paper copies free of charge.

The Government Printing Office (GPO) agreed to print and distribute the Alerts. However, there will be a 1-year subscription charge for this service. The charge will be \$25 per year for domestic mailings and \$31.25 per year for foreign mailings.

The mailing list for the Alerts is current, and we sent a subscription form to all past recipients. However, if you did not receive a subscription form, we have included one in this publication.

IF YOU WANT TO CONTACT US

If you want to contact the staff of this publication we welcome your comments, suggestions, and questions. Also, you may use any of the following means of communication to submit reports concerning aviation-related occurrences.

Editors: Phil Lomax (405) 954-6487
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P.O. Box 25082
Oklahoma City, OK 73125-5029

Internet E-mail address:

ga-alerts@mmacmail.jccbi.gov

You can access current and back issues of this publication from the internet at:

<http://www.mmac.jccbi.gov/alerts>

This web site also has view, search, E-Mail, and M or D submit functions.

The "Fedworld" web site at:

<http://www.fedworld.gov/pub/faa-asi/faa-asi.htm>

The "Fedworld" web site has approximately 5 years of back issues listed. The files are titled using eight characters. The first three characters are ALT. The second three characters indicate the month (Jan, Feb, etc.). The last two characters indicate the year (98, 99, etc.). The more recent files are in Adobe Acrobat (PDF) format and can be viewed and downloaded. To download individual monthly files, point the mouse pointer at the desired file, and click the right mouse button. This will produce a drop-down menu. Select "save target as" from the drop-down menu. Select a location for the downloaded files to reside. You can print the downloaded file(s).
NOTE: The Service Difficulty Report (SDR) files are at the end of the ALT files.

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		OPER. Control No.			3. Comments (Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.)	FAA DISTRICT OFFICE	OPERATING DIVISION
MALFUNCTION OR DEFECT REPORT		ATA Code					
		1. A/C Reg. No.	N-				
Enter part no. 482	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER		FAA DISTRICT OFFICE	OPERATING DIVISION	
2 AIRCRAFT							
3 POWERPLANT							
4 PROPELLER							
5. SPECIFIC PART (of component) CAUSING TROUBLE							
Part Name	MFG. Model or Part No.	Serial No.	Part/Defect Location.		FAA DISTRICT OFFICE	OPERATING DIVISION	
6. APPLIANCE COMPONENT (Assembly that includes part)							
Comp/Appl Name	Manufacturer	Model or Part No.	Serial Number		FAA DISTRICT OFFICE	OPERATING DIVISION	
Part TT	Part TSO	Part Condition	T. Date Sub.		FAA DISTRICT OFFICE	OPERATING DIVISION	
					Optional Information:		
					Check a box below, if this report is related to an aircraft		
					<input type="checkbox"/> Accident; Date _____ <input type="checkbox"/> Incident; Date _____		

FAA Form 8010-4 (10-99) SUPERSEDES PREVIOUS EDITIONS

Use this space for continuation of Block 8 (if required).

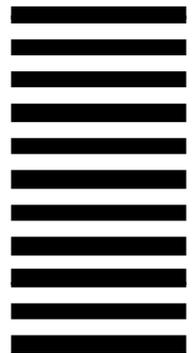
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