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# MAINTENANCE MANUAL SUPPLEMENT

NFC Document No. MMS-921

## CESSNA CITATION MODEL 550

### INCREASED RAMP AND TAKEOFF WEIGHT INSTALLATION

26 SEPTEMBER 1990

This supplement must be attached to the Cessna Citation Model 550 Maintenance Manual when the New Flight Corporation (P.N. 90C891-001 or -002) is installed in accordance with FAA STC NO. SA4954NM. The information contained herein supplements the basic maintenance manual in the areas listed.

Prepared by J. Haworth

Approved by J.C.H.

REV	DATE	DESCRIPTION	PREP BY	APPVD BY
A	7Jan91	Add note to page 2, par. 4 of Section 5-11-00	JH	JH
B	22Apr91	Revise Landing Gear Life Limits to agree with AFM Supplement, Section 1	JH	JH
C	1Jul94	Revised name on title page: New Flight Corporation was Branson Aircraft Corporation	JH	JH
D	28Jul95	Added FAA approved Section 4, Deleted Section 5	JH	JH
E	30Apr03	Updated Sections 4-11-00 and 4-12-00 with revised Life Limits	JH	JH
F	06Jan04	Updated Chapters 12 and 32 with additional wheel assembly data	JH	JH
G	12Mar10	Revised Section 5, incorporating revision 29 of Cessna Maintenance Manual 55CH5-29. Section 5 was Section 4. Added aircraft - 0627 thru -0800.	JH	JH

## INTRODUCTION

This manual is applicable to the Cessna Citation Model 550 when it has the New Flight Corporation Increased Ramp and Takeoff Weight modifications (P.N. 90C891-001 or -002) installed.

This manual is a supplement to the Cessna Citation Model 550 Maintenance Manual and the Illustrated Parts Manual. It pertains only to the areas affected by the ramp and takeoff weight increase. Maintenance information contained herein supplements the basic manual in the areas listed.

The supplement is arranged using the same chapter/system element numbers contained in the basic manual. For example:

52-40-00. Service Door

will be found in Chapter 52, Doors, Section 40 Service Doors. The material contained in this supplement and keyed 52-40-00 should be added to that chapter and section of the basic Maintenance Manual.

The following chapters in the basic Maintenance Manual are affected by this supplement:

Chapter 5      Airworthiness Limitations

Chapter 12     Servicing

Chapter 32     Landing Gear

FAA approval is limited to Chapter 5 only.

## CONTENTS

A. INSPECTION TIME LIMITS .....	5-10-00
B. COMPONENT TIME LIMITS .....	5-11-00
C. EQUIVALENT LIFE FOR AIRCRAFT WITH PRE-MOD LANDINGS.....	5-12-00
D. REMOVING THIS MODIFICATION .....	5-12-01

## AIRWORTHINESS LIMITATIONS

### NOTE:

This Airworthiness Limitations section is FAA approved and specifies maintenance required under 43.16 and 91.163 of the Federal Aviation Regulations unless an alternate program has been FAA approved.

Approved by Roger Caldwell  
*for* Manager, Aircraft Certification Office  
Federal Aviation Administration  
Denver, Colorado

Date of Approval 03/12/2010

**A. MAINTENANCE INSPECTION SCHEDULE**

No change from standard approved inspection intervals as established in Cessna Citation Maintenance Manual Chapter 5, Section 10, "Inspection Time Limits."

## B. COMPONENT TIME LIMITS

The component times presented in this section specify the currently approved intervals at which the listed aircraft components must be replaced. Only those components which are affected by the increased ramp and takeoff weight modifications are shown here. All other components remain the same as shown in the Cessna Maintenance Manual.

### LANDING GEAR LIFE LIMITS

(Airplanes -0002 thru -0626, except -0491 and -0492)

Part Number	Description	Replacement
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#### NOSE GEAR

5542000-9 (See Note 1)	Nose Landing Gear Assembly and Attaching Hardware	15,100
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Note 1: The following components are included in the nose gear assembly and attaching hardware, and unless otherwise noted, the replacement life limit of each is as indicated for the entire assembly: Trunnion Pins, Trunnion Support Fitting, Actuator, Actuator Support Fitting, Actuator Attach Bolt, Trunnion Assembly, Piston Weld Assembly, Fork, Cylinder Braze Assembly, Upper and Lower Torque Link, Torque Link Shaft, Axle Shaft, Axle Tube, Axle Spacers and Axle Buckets.

The following individual components are exceptions to the above life limit:

5542300-1, -3	Fork (See Note 2)	8,800
5542105-2, -3	Piston Weld Assembly	8,800
9912063-13	Actuator (See Note 3)	20,900
9912120-1, -2, -3, -4	Actuator (See Note 3)	15,900

Note 2: Nose gear fork must be inspected visually or in accordance with the nose gear fork dye penetrant or eddy current inspection (procedures in the Cessna Nondestructive Testing Manual) at every 5,000 landing and every 1000 landings thereafter until the replacement life limit is reached.

Note 3: For convenience, a cross-reference between Cessna part number and Vendor part number is provided in the Cessna Maintenance Manual.

<b>Part Number</b>	<b>Description</b>	<b>Replacement</b>
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**MAIN GEAR**

6541000-3,-11,-27,-33,-37 (See Note 4)	Left Main Landing Gear Assembly and Attaching Hardware	18,800
6541000-4,-12,-28,-34,-38 (See Note 4)	Right Main Landing Gear Assembly and Attaching Hardware	18,800

Note 4: The following components are included in the main gear assembly and attaching hardware, and unless otherwise noted, the replacement life limit of each is as indicated for the entire assembly: Trunnion Attach Pins, Actuator Assembly, Sidebrace Attach Pin, Sidebrace Attach Nut, Sidebrace Attach Stud, Trunnion, Outer Cylinder, Piston, Axle, Upper Piston Bearing, Upper and Lower Torque Link, Torque Link Shaft, Torque Link Bolt and Nut, Forward and Aft Trunnion Support Fitting and the Sidebrace Support Fitting.

The following individual components are exceptions to the above life limit:

5541109-1,-2	Outer Cylinder	10,900
5541304-6	Torque Link Assembly, Lower	26,800
9912053-13,-17,-19	Actuator Assembly, LH (See Note 5)	24,300
9912053-14,-18,-20	Actuator Assembly, RH (See Note 5)	24,300

Note 5: For convenience, a cross reference between Cessna part number and Vendor part number is provided in the Cessna Maintenance Manual.

### LANDING GEAR LIFE LIMITS

(Airplanes -0491 and -0492, only)

<b>Part Number</b>	<b>Description</b>	<b>Replacement</b>
<b>NOSE GEAR</b>		
5542000-9	Nose Landing Gear Assembly and Attaching Hardware	10,800

The following individual components are exceptions to the above life limit:

5542300-1,-3	Fork (See Note 6)	6,300
5542105-3	Piston Weld Assembly	6,300
9912063-13	Actuator (See Note 7)	14,300
9912120-1,-2,-3,-4	Actuator (See Note 7)	11,300

Note 6: Nose gear fork must be inspected visually or in accordance with the nose gear fork dye penetrant or eddy current inspection (procedures in the Cessna Nondestructive Testing Manual) at every 3,400 landing and every 1000 landings thereafter until the replacement life limit is reached.

Note 7: For convenience, a cross-reference between Cessna part number and Vendor part number is provided in the Cessna Maintenance Manual.

<b>Part Number</b>	<b>Description</b>	<b>Replacement</b>
<b>MAIN GEAR</b>		
6541000-37	Left Main Landing Gear Assembly and Attaching Hardware	11,300
6541000-38,	Right Main Landing Gear Assembly and Attaching Hardware	11,300

The following individual components are exceptions to the above life limit:

5541304-6	Torque Link Assembly, Lower	16,200
9912053-13,-17,-19	Actuator Assembly, LH (See Note 8)	14,600
9912053-14,-18,-20	Actuator Assembly, RH (See Note 8)	14,600

Note 8: For convenience, a cross reference between Cessna part number and Vendor part number is provided in the Cessna Maintenance Manual.



## LANDING GEAR LIFE LIMITS

(Airplanes -0627 and -0800)

<b>Part Number</b>	<b>Description</b>	<b>Replacement (Landings)</b>
<b>NOSE GEAR</b>		
6642000-5,-11 (See Note 9)	Nose Landing Gear Assembly and Attaching Hardware	20,800

Note 9: The following components are included in the nose gear assembly and attaching hardware, and unless otherwise noted, the replacement life limit of each is as indicated for the entire assembly: Trunnion Pins, Trunnion Support Fitting, Actuator, Actuator Support Fitting, Actuator Attach Bolt, Trunnion Assembly, Piston Weld Assembly, Fork, Cylinder Braze Assembly, Upper and Lower Torque Link, Torque Link Shaft, Axle Shaft, Axle Tube, Axle Spacers and Axle Buckets.

The following individual components are exceptions to the above life limit:

5542300-2	Fork (See Note 10)	12,200
6642100-1,-2	Piston Weld Assembly	12,200
9912063-13	Actuator (See Note 11)	31,300
9912120-1,-2,-3,-4	Actuator (See Note 11)	20,800

Note 10: Nose gear fork must be inspected visually or in accordance with the nose gear fork dye penetrant or eddy current inspection (procedures in the Cessna Nondestructive Testing Manual) at every 10,000 landing and every 1000 landings thereafter until the replacement life limit is reached.

Note 11: For convenience, a cross-reference between Cessna part number and Vendor part number is provided in the Cessna Maintenance Manual.

<b>Part Number</b>	<b>Description</b>	<b>Replacement (Landings)</b>
<b>MAIN GEAR</b>		
6641001-3,-7,-13,-21 (See Note 12)	Left Main Landing Gear Assembly and Attaching Hardware	22,500
6541001-4,-8,-14,-22 (See Note 12)	Right Main Landing Gear Assembly and Attaching Hardware	22,500

Note 12: The following components are included in the nose gear assembly and attaching hardware, and unless otherwise noted, the replacement life limit of each is as indicated for the entire assembly: Trunnion Attach Pins, Actuator Assembly, Sidebrace Attach Pin, Sidebrace Attach Nut, Sidebrace Attach Stud, Trunnion, Outer Cylinder, Piston Axle, Upper Piston Bearing, Upper and Lower Torque Link, Torque Link Shaft, Torque Link Bolt and Nut, Forward and Aft Trunnion Support Fitting and Sidebrace Support Fitting.

The following individual components are exceptions to the above life limit:

5541220-2	Torque Link Bolt	18,800
9912053-21,-23	Left Actuator Assembly (See Note 13)	35,900
9912053-22,-24	Right Actuator Assembly (See Note 13)	35,900

Note 13: For convenience, a cross-reference between Cessna part number and Vendor part number is provided in the Cessna Maintenance Manual.

### C. EQUIVALENT LIFE FOR AIRCRAFT WITH PRE-MOD LANDINGS

For airplanes which have takeoffs and landings prior to the modifications, the life landing gear must be adjusted to equivalent heavy weight operations. The following pages show a life reduction to be used for an aircraft for every 1000 pre-mod landings.

Calculation of replacement time limits for aircraft with pre-mod landings is a two step process. First, the number of takeoffs/landings at the lighter weights must be converted to equivalent heavy weight operations. Then this number must be subtracted from the heavy weight life limits listed in the previous section to determine the replacement life limit for the component.

Two worksheets are provided at the end of this section to help make these calculations.

#### EXAMPLE:

Assume an aircraft has 3500 pre-mod takeoff/landing operations before this modification was installed. The main gear actuator assembly, part number 9912053-13 or -14, originally had a replacement life limit of 37,500 operations, which can be found in the Cessna Maintenance Manual, Chapter 5. After modification, the actuator assembly life limit has been reduced to 24,300 operations, as shown in this Maintenance Manual Supplement, Section 5-11-00, page 2.

First, it is necessary to calculate the equivalent life of the assembly:

$$\begin{array}{r}
 \text{Equivalent life} = 3500 \times \frac{650}{1000} = 2275 \\
 \begin{array}{l}
 \text{Number of pre-mod operations since new or replacement} \\
 \text{Equivalent Life/1000 operations, from MMS-921,} \\
 \text{Section 5-12-00, page 2, 3 or 4} \\
 \text{Always 1000}
 \end{array}
 \end{array}$$

Next, calculate the new replacement life (in airframe cycles) by subtracting the equivalent life from the new life limit, and adding this to the pre-mod operation:

$$\begin{array}{r}
 \text{Next replacement due (always higher than life limit)} \\
 24,300 - 2,275 + 3,500 = 25,525 \\
 \begin{array}{l}
 \text{Pre-mod Landings Recorded} \\
 \text{Equivalent Landings, from Step 1} \\
 \text{Life Limit from MMS-921, Section 5-11-00, pages 1 and 2, 3 and 4, or 5 and 6}
 \end{array}
 \end{array}$$

Note: Full Stop Landings after modification are always counted one for one.

**LANDING GEAR EQUIVALENT LIFE**

(Airplanes -0002 thru -0626, except -0491 and -0492)

<b>Part Number</b>	<b>Description</b>	<b>Equivalent Life/1000</b>
<b>NOSE GEAR</b>		
5542000-9	Nose Gear Assy	671
5542105-2,-3	Piston Weld Assy	704
5542300-1,-3	Fork	704
9912063-13	Actuator	641
9912120-1,-2,-3,-4	Actuator	665
<b>MAIN GEAR</b>		
6541000-3,-11,-27,-33,-37	Main Gear Assy LH	657
6541000-4,-12,-28,-34,-38	Main Gear Assy RH	657
5541109-1,-2	Outer Cylinder	677
5541304-6	Torque Link Assy	644
9912053-13,-17,-19	Actuator Assy, LH	648
9912053-14,-18,-20	Actuator Assy, RH	648

**LANDING GEAR EQUIVALENT LIFE**

(Airplanes -0491 and -0492, only)

<b>Part Number</b>	<b>Description</b>	<b>Equivalent Life/1000</b>
<b>NOSE GEAR</b>		
5542000-9	Nose Gear Assy	697
5542300-1,3	Fork	733
5542105-3	Piston Weld Assy	733
9912063-13	Actuator	675
9912120-1,-2,-3,-4	Actuator	689
<b>MAIN GEAR</b>		
6541000-37	Main Gear Assy, LH	673
6541000-38	Main Gear Assy, RH	673
5541304-6	Torque Link Assy	661
9912053-13,-17,-19	Actuator Assy, LH	664
9912053-14,-18,-20	Actuator Assy, RH	664

## LANDING GEAR EQUIVALENT LIFE

(Airplanes -0627 thru -0800)

<b>Part Number</b>	<b>Description</b>	<b>Equivalent Life/1000</b>
<b>NOSE GEAR</b>		
6642000-5,-11	Nose Gear Assy	870
5542300-2	Fork	884
6642100-1,-2	Piston Weld Assy	884
9912063-13	Actuator	855
9912120-1,-2,-3,-4	Actuator	870
<b>MAIN GEAR</b>		
6541001-3,-7,-13,-21	Main Gear Assy LH	872
6541001-4,-8,-14,-22	Main Gear Assy RH	872
5541220-2	Torque Link Bolt	874
9912053-21,-23	Left Actuator Assy	865
9912053-22,-24	Right Actuator Assy	865







**D. REMOVING THIS MODIFICATION**

Should it ever be necessary to remove this modification, the life limits of the landing gear components must be re-calculated to reflect the takeoffs and landings logged while the modification was installed. Contact New Flight Corporation for information.

## CHAPTER 12

### TIRES - SERVICING

#### 1. General

The tires used on the airplane are as follows:

Main Wheel Tire: 22.0 x 8.00 -10 (12 ply tubeless)

See MMS-921, Section 32-40-01 for approved tire part numbers.

#### 2. Tire Inflation

Main gear tire pressure is  $135 \pm 5$  psi at 70°F ambient temperature with no loading.

### WHEELS - SERVICING

#### 1. General

The wheels used on the main gear of the airplane are one of the following:

Cleveland Div., Parker Hannifin	040-23901 (formerly 40-239A)
BFGoodrich	3-1490-1

Do not mix wheel assemblies. Both right and left gear must be the same part number.

#### 2. Wheel Inspection

The Parker Hannifin 040-23901 Wheel Assembly must be disassembled and inspected at each tire change. See Parker Hannifin “Component Maintenance Manual with Illustrated Parts list for Wheel Assembly “040-23901” for disassembly instructions and inspection procedures.

The BFGoodrich 3-1490-1 Wheel Assembly must be disassembled and inspected at each tire change. See BFGoodrich “Component Maintenance Manual 32-46-42” for detailed instructions.

## **BRAKES - WEAR LIMITS**

### **1. General**

The brakes used on the main gear of the airplane are one of the following:

Cleveland Div., Parker Hannifin:	030-18902 (formerly 30-189B)
BFGoodrich:	3-1528-6

Do not mix brake assemblies. Both right and left gear must be the same part number.

### **2. Wear Limits**

The Parker Hannifin 030-18902 Brake Assy utilizes the retract stud in each of the three retract mechanisms as a lining wear indicator. See Parker Hannifin "Overhaul Manual with Illustrated Parts list for Brake Assembly 030-18902" for inspection procedures and wear limits.

The BFGoodrich 3-1528-6 Brake Assy utilizes a rod on the brake piston housing assembly to indicate when the brake must be removed for overhaul. See BFGoodrich "Component Maintenance Manual 32-46-42" for detailed instructions.

## CHAPTER 32

### WHEELS AND BRAKES - DESCRIPTION AND OPERATION

#### Description

##### Main Gear Tire

The airplane utilizes a size 22 x 8.0 tubeless 12-ply rated ribbed tread tire.

##### Main Gear Wheel

Cleveland Division, Parker Hannifin Corporation, Part Number 040-23901

For a complete description of the Main Gear Wheel Assembly, see Parker Hannifin Corporation "Overhaul Manual with Illustrated Parts List for Wheel Assembly 040-23901," or

BFGoodrich, Wheel and Brake Operations, Part Number 3-1490-1

For a complete description of the Main Gear Wheel Assembly, see BFGoodrich "Component Maintenance Manual with Illustrated Parts List 32-45-43."

##### Main Gear Brakes

Cleveland Division, Parker Hannifin Corporation, Part Number 030-18902

For a complete description of the Main Gear Brake Assembly, see Parker Hannifin Corporation "Overhaul Manual with Illustrated Parts List for Brake Assembly 030-18902," or

BFGoodrich, Wheel and Brake Operations, Part Number 2-1528-6

For a complete description of the Main Gear Brake Assembly, see BFGoodrich "Component Maintenance Manual with Illustrated Parts List 32-46-42."

### **Operation - Cleveland Assemblies Only**

Braking action begins to occur when hydraulic pressure is applied to the brake assembly via the pilot's and/or co-pilot's master cylinders, which moves the pistons out of the cylinder housing. As this pressure overcomes the spring force in the retract assemblies, the pistons will contact the pressure plate assembly and force the discs and center stator into the torque plate generating torque. This braking action is then transmitted to the wheel by the drive tangs on the discs.

### **Removal / Installation - Cleveland Assemblies Only**

#### **A. Removal**

1. Jack aircraft per Aircraft Maintenance Manual until the tire is clear of the ground. Fully deflate tire.
2. Depressure hydraulic system to brakes.
3. Remove existing drive cap and outboard spacer, if applicable.
4. Remove and retain two screws securing axle nut and anti-skid transducer. Remove and retain axle nut and tanged washer.
5. Remove main gear wheel.
6. Disconnect hydraulic and pneumatic hoses from inlet ports.
7. Plug ends of the hydraulic and pneumatic hoses.
8. Remove and retain screw securing ground strap.
9. Remove brake assembly from axle.

#### **Install Brake Assembly**

1. Thoroughly clean axle surface that contacts brake assembly and apply a light coat of Fel-Pro C-5A anti-seize compound or MIL-G-81322 grease.
2. Apply a light coat of Fel-Pro C-5A anti-seize compound or MIL-G-81322 grease to axle bore of brake assembly and bushing.
3. Slide brake assembly onto axle with the cylinder housing towards the landing gear strut, being careful to avoid damage to axle threads.
4. Connect hydraulic hose to shuttle valve body.

5. Connect pneumatic hose to pneumatic inlet fitting.
6. Attach ground strap to brake housing using screw retained from removal procedure.

### Installing Wheel Assembly

**CAUTION: Handle the wheel bearing cones with extreme care. Many bearing failures can be traced to dropping or mishandling the cones during maintenance. Do not drive bearing cones onto the aircraft axle, and never overtighten the axle nut.**

1. Check for burrs or rough threads on axle and axle nut.
2. Insert bearing cone and grease seal into inner wheel half hub.
3. Align drive tangs on the outer perimeter of the brake rotating discs.
4. Carefully align the wheel and tire assembly with the axle and align the wheel key slots with the brake disc drive tangs.

**CAUTION: Make certain the drive tangs are engaged in the wheel key slots.**

5. Install bearing cone and grease seal into the outer wheel half hub.
6. Install axle nut as follows:
  - a) Apply MIL-G-81322 bearing grease to axle threads and axle nut threads, and to all load-bearing surfaces of the axle nut and tanged washer.
  - b) Place tanged washer in position on axle and rotate axle nut onto the axle until it is snug.
  - c) Tighten axle nut to 100 inch-pounds while manually rotating the wheel. Back off the nut to zero inch-pounds but with all the parts still seated.
  - d) Retorque axle nut to 50 inch-pounds while manually rotating the wheel. If not at a locking position, advance the nut to the nearest locking position.
7. Secure anti-skid transducer and axle nut with two screws and lockwire as required.

8. Snap drive coupling which is attached to the hubcap onto anti-skid transducer and attach hubcap onto outer wheel half assembly with three screws.

**NOTE: Use care that the drive coupling engages the anti-skid transducer drive shaft when installing the hubcap.**

9. Lockwire hubcap screws as required.
10. Bleed brakes using procedure specified in the Aircraft Maintenance Manual.
11. Perform a retraction of the landing gear to verify that the hydraulic and pneumatic hoses are not overstressed and proper clearance is achieved between the hoses and the wheel well structure. If contact is detected between the hoses and wheel well structure, lower the gear and reposition the hoses to gain proper clearance. Repeat retraction of the gear and check for proper clearance.
12. Lower aircraft and remove jacks.

## PARTS LIST

<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>VENDOR</b>
220K28-1	Main Gear Tire	GOODYEAR AEROSPACE CORP. 1210 Massillon Rd. Akron, Ohio 44315
028-700-0	Main Gear Tire	MICHELIN AIRCRAFT TIRE CORP. 150 Springside Drive Akron, Ohio 44313
030-18902	Main Gear Brake Assy (formerly 30-189B)	PARKER HANNIFIN CORP. 1160 Center Road Avon, Ohio 44011
2-1528-6	Main Gear Brake Assy	BFGOODRICH AEROSPACE P.O. Box 340 Troy, Ohio 45373
040-23901	Main Gear Wheel Assy (formerly 40-239B)	PARKER HANNIFIN CORP. 1160 Center Road Avon, Ohio 44011
3-1490-1	Main Gear Wheel Assy	BFGOODRICH AEROSPACE P.O. Box 340 Troy, Ohio 45373
90C899-013	Placard, Tire Pressure <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;"><b>INFLATE TIRE 135 ± 5 PSI</b></div>	NEW FLIGHT CORPORATION 3241 S. Locust Street Denver, Colorado 80222
90C899-015	Placard, Cockpit Panel “THIS AIRCRAFT HAS BEEN MODIFIED . . .”	NEW FLIGHT CORPORATION 3241 S. Locust Street Denver, Colorado 80222