

Cape Cod Community College AMTS

Practical Project Guide for AMT 215 Airframe Curriculum, Subject Item 29

Part 147, Appendix C, Part 2, Subject A – Aircraft Landing Gear Systems

Item 29. Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems (Level 3)

Project 1A, 1B, & 1C

Purpose: To acquaint the student with the proper procedures for the inspection, check, repair, and servicing of brakes and tires.

References:

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) Piper Comanche PA 24-250 Maintenance Manual, Section 6
- (4) AeroTrain AS-03 Hydraulic Landing Gear System Trainer Manual
- (5) TronAir Hydraulic Cart Operating Manual
- (6) Access to Safety Data Sheets

Equipment and Tools Needed:

- (1) Cessna 402C
- (2) Piper Comanche PA 24-250
- (3) AeroTrain AS-03 Hydraulic Landing Gear System Trainer
- (4) TronAir Hydraulic Cart
- (5) Snap-On Roll-around Toolbox
- (6) Personal Protection Equipment (PPE)

Supplies and Materials Needed:

- (1) 8 Ton Long Ram Aircraft Jacks (quantity 3)
- (2) 3.5-inch Top of the Ram Adapter (quantity 3)
- (3) Aircraft Jack Pads (quantity 2)
- (4) Nitrogen servicing bottle with gauge, hose, and fittings
- (5) Appropriate consumables

Procedure:

Complete following procedure on the assigned projects 1A, 1B, or 1C

- (1) Inspect, check, repair, and service the tire and wheel brake assembly:
 - a. Jack aircraft in accordance with maintenance/service manual until tires are clear of ground
 - b. Remove tire and brake assembly from aircraft
 - c. Remove brake assembly from tire
 - d. Inspect and repair tire and wheel brake assembly as necessary
 - e. Reassemble tire and wheel brake assembly
 - f. Reinstall tire and wheel brake assembly to aircraft
 - g. Service tire and wheel brake as necessary, ensuring no air is trapped in brake fluid lines by “bleeding” the hydraulic brake lines
 - h. Perform operational check of the tire and wheel brake
 - i. Remove aircraft from jacks
 - j. Complete all necessary maintenance/service logbook entries for return-to-service of aircraft

Project 1A Item 29: Inspect, check, service, and repair wheel brake (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

Project 1B Item 29: Inspect, check, service, and repair wheel brake (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Piper Comanche PA 24-250 Maintenance Manual, Section VI
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

Project 1C Item 29: Inspect, check, service, and repair wheel brake (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) AeroTrain Hydraulic Landing Gear System Trainer Manual
- (3) Access to Safety Data Sheets

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Part 147, Appendix C, Part 2, Subject A – Aircraft Landing Gear Systems

Project 2A & 2B

Purpose: To acquaint the student with the proper procedures for the inspection, check, repair, and servicing of landing gear, retraction systems, and shock struts.

References:

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) Piper Comanche PA 24-250 Maintenance Manual, Section 6
- (4) TronAir Hydraulic Cart Operating Manual
- (5) Access to Safety Data Sheets

Equipment and Tools Needed:

- (1) Cessna 402C
- (2) Piper Comanche PA 24-250
- (3) Tron Air Hydraulic Cart
- (4) Personal Protection Equipment (PPE)
- (5) Snap-On Roll-around Toolbox

Supplies and Materials Needed:

- (1) 8 Ton Long Ram Aircraft Jacks (quantity 3)
- (2) 3.5-inch Top of the Ram Adapter (quantity 3)
- (3) Aircraft Jack Pads (quantity 2)
- (4) Nitrogen servicing bottle with gauge, hose, and fittings
- (5) Drip pan
- (6) Appropriate consumables

Procedure:

Complete the following procedure on the assigned projects 2A or 2B

- (1) Inspect, check, repair, and service the LH Main landing gear, retraction systems, and shock strut:
 - a. Jack aircraft in accordance with maintenance/service manual
 - b. Place a drip pan under gear to capture spillage
 - c. Disassemble LH Main landing gear
 - d. Inspect and repair as necessary LH Main landing gear doors, LH Main landing gear retraction system, and LH Main landing gear shock strut
 - e. Reassemble landing gear
 - f. Service as necessary – LH Main landing gear doors, LH Main landing gear retraction system, and LH Main landing gear shock strut
 - g. Perform operational check on LH Main landing gear, LH Main landing gear retraction system, and LH Main landing gear shock strut
 - h. Remove aircraft from jacks
 - i. Complete all necessary maintenance/service logbook entries for return-to-service of aircraft

Project 2A Item 29: Inspect, check, service, and repair LH Main landing gear, LH Main retraction systems, and LH Main shock strut (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

Project 2B Item 29: Inspect, check, service, and repair LH Main landing gear, LH Main retraction systems, and LH Main shock strut (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Piper Comanche PA 24-250 Maintenance Manual, Section 6
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

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Part 147, Appendix C, Part 2, Subject A – Aircraft Landing Gear Systems

Project 3A & 3B

Purpose: To acquaint the student with the proper procedures for the inspection, check, repair, and servicing of landing gear, retraction systems, and shock struts.

References:

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) Piper Comanche PA 24-250 Maintenance Manual, Section 6
- (4) TronAir Hydraulic Cart Operating Manual
- (5) Access to Safety Data Sheets

Equipment and Tools Needed:

- (1) Cessna 402C
- (2) Piper Comanche PA 24-250
- (3) Tron Air Hydraulic Cart
- (4) Snap-On Roll-around Toolbox
- (5) Personal Protection Equipment (PPE)

Supplies and Materials Needed:

- (1) 8 Ton Long Ram Aircraft Jacks (quantity 3)
- (2) 3.5-inch Top of the Ram Adapter (quantity 3)
- (3) Aircraft Jack Pads (quantity 2)
- (4) Nitrogen servicing bottle with gauge, hose, and fittings
- (5) Drip pan
- (6) Appropriate consumables

Procedure:

Complete the following procedure on the assigned projects 3A or 3B

- (1) Inspect, check, repair, and service the RH Main landing gear, retraction systems, and shock strut:
 - a. Jack aircraft in accordance with maintenance/service manual
 - b. Place a drip pan under gear to capture spillage
 - c. Disassemble RH Main landing gear
 - d. Inspect and repair as necessary RH Main landing gear doors, RH Main landing gear retraction system, and RH Main landing gear shock strut
 - e. Reassemble landing gear
 - f. Service as necessary – RH Main landing gear doors, RH Main landing gear retraction system, and RH Main landing gear shock strut
 - g. Perform operational check on RH Main landing gear, RH Main landing gear retraction system, and RH Main landing gear shock strut
 - h. Remove aircraft from jacks
 - i. Complete all necessary maintenance/service logbook entries for return-to-service of aircraft

Project 3A Item 29: Inspect, check, service, and repair RH Main landing gear, RH Main retraction systems, and RH Main shock strut (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

Project 3B Item 29: Inspect, check, service, and repair RH Main landing gear, RH Main retraction systems, and RH Main shock strut (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Piper Comanche PA 24-250 Maintenance Manual, Section VI
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

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Part 147, Appendix C, Part 2, Subject A – Aircraft Landing Gear Systems

Project 4A & 4B

Purpose: To acquaint the student with the proper procedures for the inspection, check, repair, and servicing of landing gear, retraction systems, shock struts and steering systems.

References:

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) Piper Comanche PA 24-250 Maintenance Manual, Section 6
- (4) TronAir Hydraulic Cart Operating Manual
- (5) Access to Safety Data Sheets

Equipment and Tools Needed:

- (1) Cessna 402C
- (2) Piper Comanche PA 24-250
- (3) Tron Air Hydraulic Cart
- (4) Snap-On Roll-around Toolbox
- (5) Personal Protection Equipment (PPE)

Supplies and Materials Needed:

- (1) 8 Ton Long Ram Aircraft Jacks (quantity 3)
- (2) 3.5-inch Top of the Ram Adapter (quantity 3)
- (3) Aircraft Jack Pads (quantity 2)
- (4) Nitrogen servicing bottle with gauge, hose, and fittings
- (5) Drip pan
- (6) Appropriate consumables

Procedure:

Following procedure on the assigned projects 4A or 4B

- (1) Inspect, check, repair, and service the nose landing gear, nose retraction systems, nose shock strut, and nose steering system:
 - a. Jack aircraft in accordance with maintenance/service manual
 - b. Place a drip pan under nose gear to capture spillage
 - c. Disassemble nose landing gear
 - d. Inspect and repair as necessary nose landing gear doors, nose landing gear retraction system, nose landing gear shock strut, and nose steering system, to include the shimmy dampener
 - e. Reassemble nose landing gear
 - f. Service as necessary – nose landing gear doors, nose landing gear retraction system, nose landing gear shock strut, and nose steering system
 - g. Perform operational check on nose landing gear, nose landing gear retraction system, nose landing gear shock strut, nose steering system, and shimmy dampener
 - h. Remove aircraft from jacks
 - i. Complete all necessary maintenance/service logbook entries for return-to-service of aircraft

Project 4A Item 29: Inspect, check, service, and repair nose landing gear, nose retraction systems, nose shock struts and, nose steering system (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Cessna 402C Service Manual, Chapter 32
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

Project 4B Item 29: Inspect, check, service, and repair nose landing gear, nose retraction systems, nose shock struts, and nose steering system (Level 3)

- (1) 14 CFR Federal Aviation Regulations for Aviation Maintenance Technicians, Aviation Maintenance Technician Handbook – General, Volume 2 (FAA-H-8083-31) Chapter 13
- (2) Piper Comanche PA 24-250 Maintenance Manual, Section 6
- (3) TronAir Hydraulic Cart Operating Manual
- (4) Access to Safety Data Sheets

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