FAA Aviation Rulemaking Advisory Committee

Training Standardization Working Group (TSWG)
February 2024 Recommendation Report

Table of Contents

Contents

Table of Contents **2**
1 Executive Summary **3**
1.1 Summary 3
2 Background **3**
2.1 The Task and Tasking 3
2.2 Participants in the Training Standardization Working Group (TSWG) 5
2.3 Working Group Activity 6
3 Historical Information **7**
3.1 Overview 7
3.2 Defining the Problem 7
3.3 Resolution and Benefits 8
3.4 The Scope of a Standardized Curriculum 9
4 Recommendations **10**
4.1 Recommendation to Improve Aircraft-Specific Curricula 10

1 Executive Summary

1.1 Summary

The Standardized Curriculum Concept supports the overarching goals to enhance training and checking and promote safer operational practices in part 135 operations through a common and consistent methodology for training and evaluating. This supports the National Transportation Safety Board Most Wanted List initiative to improve the safety of part 135 flight operations.

The TSWG is comprised of representatives from the aviation industry, including training centers, aircraft manufacturers, operators and industry organizations, serving as members of the group and report to ARAC. This recommendation report includes the results of the following TSWG actions:

- Identified the components of Adaptive Recurrent standardized curricula, which incorporate the maneuvers, procedures and functions to be performed during training and checking.

- Recommended revision to Federal Aviation Administration (FAA) guidance to facilitate the execution of the standardized curricula.

2 Background

2.1 The Task and Tasking

The FAA established the Air Carrier Training Aviation Rulemaking Committee (ACT ARC) in 2014 to provide a forum for the U.S. aviation community to discuss, prioritize, and provide recommendations to the FAA about operations conducted under parts 121, 135, and 142, addressing air carrier training.

The ACT ARC produced several part 135-specific recommendations it believed would achieve standardization (where appropriate) and significant administrative efficiency in check pilot qualification, flight instructor qualification, and part 135 air carrier training curricula delivered by part 142 training centers. The ACT ARC also recommended the FAA establish a Standardized Curriculum Concept for part 135 training provided by part 142 training centers.

On March 19, 2020, the FAA assigned this task to the Aviation Rulemaking Advisory Committee (ARAC), who established a new Training Standardization Working Group (TSWG) for this purpose. The TSWG tasking for standardization includes addressing inefficiencies that exist between part 135 and part 142, such as:

1. *Training, Testing, and Checking: Operators may not receive training that matches its operational environment; instructors and check pilots may focus on multiple operational methods, which decreases the quality of training, and checking.*

2. *Lack of curriculum uniformity and improvements.*

3. *Complicated Approval Process: Multiple Principal Operations Inspectors (POIs) are currently required to review technical elements of the same curriculum.*

4. *Administrative Inefficiencies: Supplemental training for training center instructors and check pilots is required, with individual letters of approvals for each, which leaves an administrative gap with no easy means to verify qualifications. Additionally, part 135 operators must develop their own aircraft-specific fleet curriculum and must reproduce a physical copy of each as part of their training program records.*

Standardized curricula will provide a common method for quality training accessible to any operator that obtains approval to use the curriculum in its FAA-approved training program. The Standardized Curriculum Concept aims to provide an efficient means to approve training curricula offered by part 142 training centers while increasing the consistency of training, testing, and checking delivered to part 135 operators. The use of standardized curricula is strictly voluntary and is one means to comply with the applicable regulatory requirements of parts 135 and 142. The standardized curriculum does not modify existing regulatory requirements for pilot training or qualification.

The Aircraft-Specific Part 135 Standardized Curriculum Model will enhance operator/training center safety programs and create a feedback loop that allows part 135 operators and part 142 training centers to partner in an effort to systematically use safety information to continually review and improve the standardized curriculum, as well as target areas of emphasis to enhance the quality of training provided. This "train as you fly, fly as you train" approach harmonizes with safety management principles, industry best practices, and risk mitigation, raising the level of safety competencies, threat awareness, and feedback for continual evaluation.

This improvement feedback mechanism forms the basis for revising the standardized curriculum, conducting training and administering checking. These three components then work together to allow the part 135 operator to spotlight the quality of the training program rather than the administration of the training program. Likewise, it also allows the part 142 training center to deliver a standardized and consistent training product that has the capability for continual improvement on a national level.
The TSWG will provide advice and recommendations to the ARAC on the most effective ways to standardize part 135 air carrier curricula delivered by training centers. The group is formally tasked with the following:

1. *Recommend a detailed master schedule for the development of part 135 standardized curricula for each aircraft or series of aircraft.*

2. *Develop and recommend a standardized curriculum to qualify training center instructors and evaluators (check pilots) to provide part 135 training, testing, and checking.*

3. *Develop and recommend part 135 standardized curricula for each aircraft or*

series of aircraft, which includes the maneuvers, procedures, and functions to be performed during training and checking.

4. *Recommend continuous improvements to each part 135 standardized curriculum for a specific aircraft or series of aircraft.*

5. *Develop reports that contain recommendations for standardized curricula and results of the tasks listed. The group should review relevant materials to assist in achieving their objective, including FAA Advisory Circular 142-1, Standardized Curricula Delivered by Part 142 Training Centers.*

Under the Standardized Curriculum Concept, the TSWG uses formalized stakeholder input to develop and recommend to the ARAC standardized curricula for each aircraft fleet. The ARAC uses the work of the TSWG to make recommendations to the FAA. The FAA reviews the recommendations and, if acceptable, makes draft standardized curricula available for public comment through published notices in the Federal Register. The FAA may task the ARAC, through the TSWG, to use the public comments to refine its recommendations to ARAC. The FAA reviews the recommendations and, if acceptable, publishes the standardized curricula at a national level.

2.2 Participants in the Training Standardization Working Group (TSWG)

TSWG Members	
Name	**Organization**
Brian Koester, Chair	National Business Aviation Association
Thomas Benvenuto	Solairus Aviation
Stephen Bragg	Executive Jet Management
Greg Brown	Helicopter Association International
Gene Copeland*	Jet Aviation
Doug Carr	National Business Aviation Association
Jon Dodd	Coalition of Airline Pilots Associations
Aimee Hein	CAE, Inc.
Jens Hennig	General Aviation Manufacturers Association
Todd Lisak	Air Line Pilots Association
Steve Maloney	Sun Air Jets
Jacqueline Rosser *	National Air Transportation Association
Brian Neuhoff	Airbus Helicopters
Fabricio Oliveira de Toledo*	Embraer
Janine Schwahn	Summit Aviation, Inc.
Brian Small	FlightSafety International
Annmarie Stasi	Northwell
Daniel Von Bargen	Contract Pilot

*TSWG membership pending DOT review

FAA Advisory and Support Staff	
Name	**Organization**
Josh Tarkington, Project Lead	Training and Simulation Group, AFS-280
Jim Sapoznik, Subject Matter Expert	Training and Simulation Group, AFS-280
Shannon Salinsky, Change Practitioner	Training and Simulation Group, AFS-260
Kristin Tullius, Program Specialist	Training and Simulation Group, AFS-280

2.3 Working Group Activity

The TSWG members agreed to form subgroup teams to research and analyze:

- Curriculum, which includes published guidance, regulations, reference materials, data sources, and airframes practical for standardization.
- Qualifications, to include instructors, pilots, and safety-implications.
- Continuous Improvement methods, which includes data-driven metrics and recommendations.

The TSWG must comply with the procedures adopted by the ARAC as follows:

- Conduct a review and analysis of the assigned tasks and any other related materials or documents.
- Draft and submit a work plan for completion of the task, which includes the rationale to support the plan, for consideration by ARAC.
- Provide a status report at each ARAC meeting.
- Draft and submit the recommendation report based on the review and analysis of the assigned tasks.
- Present the recommendation report at the ARAC meeting.

TSWG was able to comply with the schedule and deadlines as outlined in the FAA Tasking Notice:

> *June 2021 – Deadline to submit the initial recommendation report, which includes the proposed master schedule for standardized curriculum development to ARAC. The deadline to submit the interim report to the FAA is June 30, 2021.*
>
> *December 2021 – Deadline to submit the addendum recommendation report, which includes a standardized curriculum to qualify training center instructors and check pilots to provide part 135 training, testing, and checking to ARAC. The deadline to submit the interim report to the FAA is December 31, 2021.*

The TSWG will submit ad hoc recommendation reports, which includes type-specific

standardized curricula packages (SCPs) and continuous improvements to the standardized curricula, via ARAC to the FAA for review and consideration at any time.

3 Historical Information

3.1 Overview

The concept of the standardized curriculum was recommended by industry through the Air Carrier Training Aviation Rulemaking Committee to remedy inefficiencies in the current dynamic between part 135 and part 142. The new standardized curriculum is expected to improve the efficiency of approval processes and increase the consistency of training, testing, and checking delivered to part 135 operators.

FAA Advisory Circular 142-1, Standardized Curricula Delivered by Part 142 Training Centers, provides the framework for implementation of the Standardized Curriculum Concept. Under the concept, the FAA accepts an aircraft-specific standardized curriculum at a national level. A part 142 training center may deliver the nationally accepted standardized curriculum to any part 135 operator that obtains approval to use it.

The part 135 operator's POI reviews the curriculum and grants approval for use of the aircraft-specific part 135 standardized curriculum, without changes, as part of the operator's training program. In discussions with the operator, the POI determines whether use of the aircraft-specific standardized curriculum (which comes with a cadre of qualified instructors and check pilots, along with use of the standardized curriculum) is appropriate for that operator based on the published guidance, rather than reviewing the specific content of individual modules in the aircraft-specific curriculum and the accompanying training center instructor/evaluator documentation. Introducing an aircraft-specific part 135 standardized curriculum for operators, coupled with guidance that enables part 142 training centers to develop a curriculum that would qualify part 142 training center instructors and evaluators to conduct training/checking under that aircraft-specific part 135 standardized curriculum, would address a number of inefficiencies in the current system.

3.2 Defining the Problem

Part 142 training centers generally have clients operating under a variety of 14 CFR parts and develop a core curriculum to meet the needs of their stakeholders. Currently, these core curriculums cannot be used by part 135 operators. Instead, each part 135 operator must have its own training program approved by the operator's POI. The training program can be based on the part 142 training center's core curriculum; however, the operator or POI may require changes so that the resulting curriculum meets all part 135 regulatory requirements. Because some of these curricula were not originally designed for part 135 operators, many adjustments and improvements may be necessary, which results in a lack of curriculum uniformity.

These changes, combined with the time it takes for each POI to conduct an in-depth review of each operator's curriculum, creates strain on the POI, the operator, and the training center. The operator is required to obtain POI approval of the "contract check pilot" to conduct checks under the operator's training curriculum, generally through the center's Training Center Evaluators (TCE).

The framework for the aircraft-specific part 135 standardized curriculum model, which also addresses the inefficiencies involved with each operator having approved instructors/contract check pilots, should include a manner by which training center instructors/evaluators can be qualified as instructors/check pilots under part 135. Specific guidance can be developed that would assist training centers to develop a standard non-aircraft-specific training curriculum that satisfies the requirements of § 135.329, 135.345, 135.293, and 135.297 in a manner consistent with the size, scope, and complexity of the operator (in this case, a part 142 training center) and can be approved under part 142. The training center would use this special curriculum to train and qualify its instructors/evaluators to conduct training, testing, and checking under standardized curriculums for part 135 operators.

3.3 Resolution and Benefits

The standardized curriculum may be valuable to the industry due to the expectation it will enhance safety and increase administrative benefits. Within the industry, this curriculum will be especially advantageous to part 142 training centers, part 135 operators that use a part 142 training center, training personnel who develop and deliver training under parts 135 and 142, as well as individual contract pilot.Enhanced Training, Testing, and Checking.
The use of a common set of Standard Operating Procedures (SOPs) eliminates the situation in which part 142 training center personnel deliver training and checking to numerous part 135 operators with widely varying objectives, standards, and procedures. This approach allows instructors and check pilots to focus on one operational method, which increases their ability to evaluate comprehensively the pilots they are checking.

Leveraging Expertise.
An industry-led group composed of subject matter experts (SMEs) that represent manufacturers, part 135 operators, part 142 training centers, and industry trade organizations develops the standardized curriculum. Any stakeholder can recommend improvement at any time. This means that as risks are identified (i.e., NTSB safety recs), the curriculum can be updated at a global level, with those improvements drilled down to all the operators using the curriculum.

Streamlined Approval Process.
The FAA approves and publishes the standardized curriculum at a national level. This eliminates the need for multiple POIs to review technical elements of the same curriculum. Instead, POIs evaluate if the curriculum (and associated standards and procedures) fit the needs of the part 135 operator.

Administrative Efficiency.
A part 142 training center qualifies its personnel as instructors and check pilots for the part 135 standardized curriculum. This eliminates the need for individually issued check pilot letters of

approval for each part 135 operator. Also, a part 135 standardized curriculum listed in a training center's Training Specifications (TSpecs) may be referenced in the part 135 operator's training program as an FAA-published curriculum in accordance with § 135.341, without the need to reproduce a physical copy of the curriculum.

3.4 The Scope of a Standardized Curriculum

An aircraft-specific standardized curriculum is only one segment of the training required to serve as a pilot in part 135 operations. It will not provide part 135 operators with a complete training program and is only a segment of training in accordance with § 135.324(b). See Figure 2-1 Standardized Curriculum Elements below:

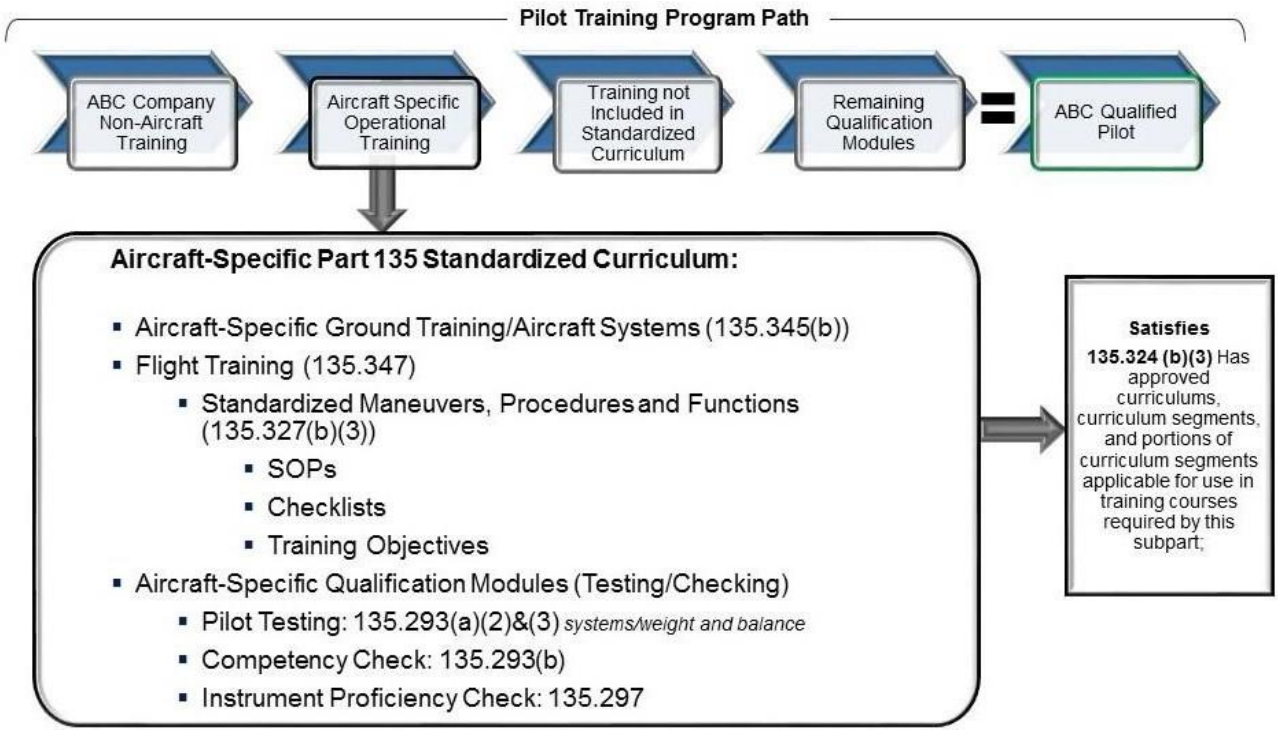

Figure 2-1 Standardized Curriculum Elements

As required for any training conducted in accordance with § 135.324(b), the part 142 training center must qualify its personnel to provide part 135 training, testing, and checking as outlined in AC 142-1 in order to deliver the standardized curriculum. The image above, Figure 2-1, Standardized Curriculum Training Elements, illustrates "the box" in which training, testing, and checking is included in the standardized curriculum. Figure 2-1 also illustrates where the standardized curriculum resides in the path to part 135 pilot qualification. The expanded area, "Aircraft-Specific Operational Training portion of the Pilot Training Program Path", defines the elements within the box of the standardized curriculum, and represents what the ACT ARC recommended.

The Standardized Curriculum Package (SCP) is a package comprised of the training curricula

and the supporting courseware, equipment, records, personnel, and facilities necessary to deliver a curriculum or group of curricula for part 135 training. The part 142 training center qualifies its personnel to deliver the part 135 training.

A part 142 training center may deliver the nationally accepted standardized curriculum to any part 135 operator that obtains approval for its use. It is one, voluntary way to comply with existing regulations as well as a way to simplify the approval process for an air carrier's training program.

4 Recommendations

4.1 Recommendation to Improve Aircraft-Specific Curricula

The TSWG recommended standardized curricula for the CE-560XL and HS-125 aircraft to ARAC in September 2023. ARAC unanimously accepted the recommendation report and provided it to the FAA. After reviewing the recommendation report, in December 2023, the FAA requested additional information or clarification from the TSWG for following items:

1. Learning Objectives not included for all OpSpecs contained within the base curriculum for CE-560XL/HS-125 aircraft
2. Clarify why Stabilized Approach Concept for CE-560XL/HS-125 aircraft is not standardized with what was previously agreed to and published in the GV curriculum
3. Clarify reasoning for CE-560XL/HS-125 Callouts missing verification of flap and gear position by Pilot Monitoring (PM) after command to select position by the Pilot Flying (PF)
4. Times missing for individual HS-125 Course 2 Simulator Sessions
5. Some Motor Skill Learning Objectives and Task Expectations missing for HS-125 in Appendix H – HS-125 Differences Courses Learning Objectives
6. No pictorials or maneuver descriptions as required by § 135.327(b)(3) included for CE-560XL/HS-125

The TSWG reviewed the requests and assigned them to the CE-560XL and HS-125 Action Teams, as appropriate, for review and response. The response to each request is detailed below.

1. Learning objectives not included for all OpSpecs contained within the base curriculum for CE-560XL and HS-125 aircraft

In response to the comment from FAA, the CE-560 and HS-125 Action Teams reviewed the previous recommendation. The previous recommendations contained all necessary training tasks and learning objectives. However, the training tasks required for receiving special authorizations were missing appropriate designations. The CE-560 and HS-125 Action Teams marked revised training task names to indicate the corresponding OpSpec(s). These tasks are included in the CE-560XL OpSpec Tasks

report and the HS-125 OpSpec Tasks Report.

During the review process, the TSWG realized the recommended G-V training curriculum also omitted OpSpec labels. Consequently, the TSWG reviewed and revised the G-V training program to indicate which training tasks correspond to training required for OpSpecs. The TSWG recommends the revisions in the G-V OpSpec Tasks Report.

The G-V curriculum meets the training requirements for operators with the following authorizations:

- B034 - IFR Class I Terminal and En Route Navigation Using Area Navigation Systems
- B035 - Class I Navigation in US Class A Airspace Using Area or Long-Range Navigation Systems
- B039 – Operations in North Atlantic High Level Airspace (NAT HLA).
- C048 - Enhanced Flight Vision Systems (EFVS) Operations.
- C052 - Straight-In, Non-Precision, APV, and Category I Precision Approach and Landing Minima - All Airports
- C063 - Area Navigation (RNAV) and Required Navigation Performance (RNP) Terminal Operations).
- C073 - Using Minimum Descent Altitude (MDA) as a Decision Altitude (DA)/Decision Height (DH).
- C075 - CAT I IFR Landing Minimum - Circling Approaches
- C077 – Terminal Visual Flight Rules, Limitations, and Provisions.
- C079 - IFR Lower-than-Standard Takeoff Minima Airplane Operations - All Airports (Part 135)

2. Clarify why Stabilized Approach Concept for CE-560XL and HS-125 aircraft not standardized with what was previously agreed to and published in the GV curriculum

The CE-560XL and HS-125 Action Teams reviewed the September 2023 recommendations and the G-V curriculum posted on the FAA's Dynamic Regulatory System. Upon review, the Action Teams discovered subtle differences and recommended revising Section 5.1.2 Stabilized Approach Criteria to match the criteria in the G-V curriculum.

- CE-560XL revisions can be found in section 5.1.2 and 8.12 on pages 54 and 68, respectively, of CE-560XL Curriculum Report.
- HS-125 revisions can be found in section 5.1.2 on page 57 of the HS-125 Curriculum Report.

3. Clarify reasoning for CE-560XL and HS-125 Callouts missing verification of flap and gear position by Pilot Monitoring (PM) after command to select position by the Pilot Flying (PF)

The CE-560XL and HS-125 Action Teams reviewed the September 2023 recommendations. Upon review, both teams confirmed callouts missing from the recommended SOPs. Both teams added Pilot Monitoring callouts to verify the flap and gear positions.

- CE-560XL revisions can be found in Sections 8.2, 8.5, 8.14, and 8.15 on pages 68, 69, 70, 71, and 72, respectively, of the CE-560XL Curriculum Report.
- HS-125 revisions can be found in Sections 8.13 and 8.14, 8.15, 8.16, and 8, 17on pages 64, 66, 69, 77, and 78 of the HS-125 Curriculum Report.

4. Times missing for individual HS-125 Course 2 Simulator Sessions

The HS-125 Action Team reviewed the September 2023 recommendation report and confirmed that it did not contain planned hours for the individual HS-125 Course 2 Simulator sessions. The Action Team provided the estimated duration of each session in the revision.

- Revisions begin on page 1367 of the HS-125 Curriculum Report.

5. Some Motor Skill Learning Objectives and Task Expectations missing for HS-125 in Appendix H – HS-125 Differences Courses Learning Objectives

The HS-125 Action Team reviewed the September 2023 recommendation report and confirmed Appendix H incorrectly displayed the tasks and performance expectations for differences training. The Action Team revised the tables and provided appropriate tasks and performance expectations for each HS-125 differences course

- Revisions begin on page 2118 of the HS-125 Curriculum Report.

6. No pictorials or maneuver descriptions as required by § 135.327(b)(3) included for CE-560XL and HS-125 aircraft

The CE-560XL and HS-125 Action Teams reviewed the September 2023 recommendation report and did not find missing descriptions required by § 135.327(b)(3). The report included textual descriptions of maneuvers, rather than pictorials, which the G-V report included. The Action Teams did not make revisions in response to this inquiry.

The table below summarizes the response to each request.

FAA COMMENT	CE-560XL REVISIONS	HS-125 REVISIONS
Learning objectives not included for all OpSpecs contained within the base curriculum for CE-560XL and HS-125 aircraft	Revisions provided in the CE-560XL OpSpec Tasks Report	Revisions provided in the HS-125 OpSpec Tasks Report
Clarify why Stabilized Approach Concept for CE-560XL and HS-125 aircraft not standardized with what was previously agreed to and published in the GV curriculum	Page 54 of the CE-560 XL Curriculum Report	Page 57 of the HS-125 Curriculum Report
Clarify reasoning for CE-560XL and HS-125 Callouts missing verification of flap and gear position by Pilot Monitoring (PM) after command to select position by the Pilot Flying (PF)	Pages 68, 69, 70, 71, and 72 of the CE-560 XL Curriculum Report	Pages 64, 66, 69, 77, and 78 of the HS-125 Curriculum Report
Times missing for individual HS-125 Course 2 Simulator Sessions	N/A	Revisions begin on page 1367 of the HS-125 Curriculum Report
Some Motor Skill Learning Objectives and Task Expectations missing for HS-125 in Appendix H – HS-125 Differences Courses Learning Objectives	N/A	Revisions begin on page 2118 of the HS-125 Curriculum Report
No pictorials or maneuver descriptions as required by § 135.327(b)(3) included for CE-560XL and HS-125 aircraft	Textual descriptions of maneuvers were included in the September 2023 ARAC Recommendation Report	Textual descriptions of maneuvers were included in the September 2023 ARAC Recommendation Report