Federal Aviation Administration – Regulations and Policies
Aviation Rulemaking Advisory Committee

Training and Qualification Issue Area
General Aviation/Ab Initio Working Group

Task 1 – Single-Pilot Cockpit Training

Task Assignment – Not Available

Recommendation Letter

Regional Airline Association • 1101 Connecticut Avenue, NW • Suite 700 • Washington, DC 20036 • 202/857-1170 • ARINC "WASRAXD"

March 19, 1993

Mr. Anthony J. Broderick
Associate Administrator for
Regulation and Certification, AVR-1
Federal Aviation Administration
800 Independence Ave. SW
Washington, DC 20591

Dear Mr. Broderick:

Enclosed is a copy of the draft Dispatch Resource Management Advisory Circular. This document was accepted at the March 4 meeting of the Aviation Rulemaking Advisory Committee to consider Training and Qualifications Issues. We recommend that the Federal Aviation Administration (FAA) accept and issue this advisory circular.

We look forward to receiving additional and beneficial tasks from the FAA.

Sincerely,

Walter S. Coleman
Assistant Chairman for
Training and Qualifications
Issues, Aviation Rulemaking
Advisory Committee

Enclosure

cc: Mr. Thomas Toula

Acknowledgement Letter

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

800 Independence Ave., S.W.
Washington, D.C. 20591

APR 30 1993

Mr. Walter S. Coleman
President
Regional Airline Association
1101 Connecticut Ave., NW, Suite 700
Washington, DC 20036

Dear Mr. Coleman:

Thank you for your March 19 letter forwarding the Aviation Rulemaking Advisory Committee Training and Qualifications Issues recommendation. The Committee recommends that the Dispatch Resource Management Advisory Circular be accepted and issued. The Federal Aviation Administration (FAA) accepts this recommendation provided there are no legal or other reasons why we cannot adopt it.

However, because the proposed advisory circular requires formatting and an extensive legal review, we cannot give you a definite timeframe for completion of action on the recommendation. After the proposed advisory circular has been formatted and reviewed by the legal office, it will be coordinated within the FAA. Thereafter, the FAA will issue a notice of availability of the document for public comment.

I would like to thank the Committee, and particularly the Air Carrier Training Working Group, for its prompt action on the task assigned by the FAA.

Sincerely,

Anthony J. Broderick
Associate Administrator
for Regulation and Certification

Recommendation

DISPATCH RESOURCE MANAGEMENT ADVISORY CIRCULAR
DRAFT 3.2
REVISED NOV 13, 1992

Prepared By Air Carrier Working Group

1) PURPOSE
To develop a resource management program for dispatchers that compliments the program developed for flight crew members in Crew Resource Management (CRM). Dispatch Resource Management (DRM) is designed to establish Human Factor training for all dispatchers.

2) GOAL
To provide the aircraft dispatcher with the skills required to exercise more effective operational control in an increasingly complicated environment. In exercising operational control, the dispatcher coordinates with the flight crew, ATC, and other members of the operational environment in order to meet the requirements of daily operations. Compliance with this Advisory Circular would maximize the dispatcher's knowledge of the other participants' duties within the National Airspace System and throughout the entire spectrum of the operating environment. This, in turn, would allow dispatchers to improve the administration of information necessary for safe flight operations and would also enhance the interface with the pilot in command in compliance with the joint responsibility concept outlined in Federal Aviation Regulations Part 121.

3) BACKGROUND
The dispatcher, in addition to other roles, is a source of communications continually receiving and disseminating information. He/she interfaces with the flight crew, ATC and other parties in the operational environment.

Recent NTSB findings have shown that the lack of operational control and cooperative decision making has been a contributing factor in the probable cause of several airline accidents.[1] The exchange of resources for operational control needs to be recognized as the best deterrent to incidents and accidents related to miscommunication.

[1] NTSB AAR-91-04; NTSB-AAR-85-03; Royal Canadian Commission Investigation of Air Ontario at Dryden.

Research in Human Factors at NASA and other governmental agencies, private industry, and various universities continues to reinforce the need for resource management training. Therefore, clear and concise communications between the dispatcher and other members of the operational environment are imperative.

CRM is a valuable training program for flight crews, but additional specialized training is required for the aircraft dispatcher. This AC is provided to complement AC 120-51A as a guideline for improved awareness of human factors involved in today's complex airline operations.

4) RELATED FAR SECTIONs and ADVISORY CIRCULARs

A) Part 121, Subpart N (Training). 121.415, 121.418, 121.422.

B) Part 121, Subpart P (Dispatch Qualification). 121.463.

C) Part 121, Subpart T (Flight Operations). 121.533, 121.535, 121.557.

D) Part 121, Subpart U (Dispatching & Flight Release Rules).

E) Part 121, Subpart M (Airman & Crewmember Requirements). 121.395

F) Part 121, Subpart E (Approval of Routes: Domestic & Flag Carriers). 121.107

G) Advisory Circular 120-51A Crew Resource Management Training.

H) SFAR 58, Advanced Qualification Program
Advanced Qualification Program Advisory Circular

5) DEFINITIONS

A) Human Factors - Human Factors is a multidisciplinary field that draws on the methods and principles of behavioral and social sciences, engineering, and physiology to optimize human performance and reduce human error. In short, human factors has become an applied science of people working with other people and interfacing with machines. Just as individual errors can degrade a system's performance and safety because of hardware design or inadequate operator training, errors in the design and management of flight dispatch systems can also degrade operational performance.

B) Dispatch Resource Management (DRM) - The focus of communication required for positive operational control is the dispatcher, who coordinates all available resources for the flight crew. DRM encompasses the optimization of the person/machine interface and the interpersonal activities including effective team formation, maintaining information transfer, problem solving, decision making, situational awareness, and utilizing automated systems. Training in DRM/CRM involves initial indoctrination, recurrent training and reinforcement in human factors concepts. DRM refers to the effective use of all available resources: human, hardware, and informational.

C) Operational Control - The exercise of authority over initiating, conducting or terminating a flight.

D) Crew Resource Management (CRM) - Human factors training for crew members covered in crew resource management training AC No. 120-51A.

6) DEVELOPER/FACILITATOR

A) Course developers and facilitators should clearly define DRM and DRM/CRM team concepts as well as related techniques and human factor applications.

B) The effectiveness of any training curriculum can be directly related to the expertise of the personnel involved in the development and facilitation of the program. Therefore, basic criteria for the personnel involved should be established.

Ideally, development and facilitation should be done by current, qualified dispatchers that have also been trained in (but not limited to) the following DRM/CRM areas:

a) Listening and Communication

b) Behavior Identification

c) Role Playing, Simulations and Group Discussions

d) Debrief and Feedback

In the event that the DRM developer/facilitator is not a currently qualified dispatcher, thorough training (in addition to the areas listed above) on the duties and responsibilities of a Flight Dispatcher is imperative.

7) CURRICULUM

A) Basic Indoctrination

The indoctrination and awareness phase of DRM training consists of classroom presentations that focus on the interpersonal relations and coordination involved in a decision making process. This also provides a common terminology and conceptual framework for identifying and describing personal coordination problems. Indoctrination can be accomplished by a combination of methods: lectures, presentations, discussion groups, and role playing exercises. It is advantageous to have interactive participation of flight crew and other members of the operating environment for maximum benefit.

This curriculum development should address DRM skills that have been demonstrated to influence dispatcher performance. For maximum effectiveness, the curriculum should define the concepts involved and relate directly to operational issues which dispatchers face in daily operations.

B) Basic Concepts

1) Operating Environment - The operating environment consists of, but is not limited to, interactions of the Dispatcher with:

a) Pilots
b) ATC
c) Other Dispatchers
d) Management
e) Station Personnel
f) An Approved Meteorology Source
g) Aircraft Maintenance
h) Load Planners
i) Crew Schedulers
j) Aircraft Routers
k) Communication Systems & Related Personnel
l) Approved Flight Planning System & Related Personnel

2) Situational Awareness - The ability to absorb information in a dynamic environment, to evaluate and refine that information, to anticipate contingencies, and to initiate remedial actions as necessary.

3) Communications - The most important aspect of the dispatcher function is the ability to communicate effectively. This communication should be 'n standardized language that is clear and easily understood by individuals of other departments and agencies. Interdepartmental discussions and training also need to be encouraged. Special emphasis should be given to the following:

a) Inquiry/Advocacy/Assertion.

b) Conflict Resolution.

c) Radio Communication (Phraseology and Techniques).

4) Informational Dissemination - One of the aircraft dispatcher's main responsibilities is to keep the flight crew updated on any information that will impact flight safety. Dispatchers are required to process large quantities of real-time information and to decide what data is pertinent to all phases of flights under their operational control. The dispatcher is required to pass on relevant information and obtain missing information. This process provides the flight crew with necessary information and avoids distraction by preventing informational overload to the flight crew.

5) Interpersonal Skills - DRM concentrates on dispatcher attitudes and behaviors and their impact on others.

6) Workload Management - DRM should help dispatchers learn that how they react during normal, routine circumstances can have a powerful influence on how well they function during high workload and stressful situations.

Strong emphasis should be placed on a prioritization of duties that insure safety through proper operational control.

7) Effective Decision Making - Through inquiry, advocacy and assertion, the dispatcher assumes a leadership role within the operational environment. This leadership role in workload management and situational awareness supports the Captain within his operating environment. Such a role requires the dispatcher together with the pilot in command utilize risk assessment skills which include the following:

a) have a clear understanding of the different concerns to be considered in evaluating decision alternatives (safety, passenger comfort, economy, efficiency).

b) be aware of the different types of data and resources available to the various parties involved in the decision making;

c) be skilled in applying effective problem-solving strategies to help coordinate and participate in decision-making activities;

d) be aware of causes of errors and inefficiencies, so that such behaviors and situations can be recognized and avoided.

C) Periodic Practice and Feedback - DRM reinforcement should extend into other types of training including technical and interdepartmental training on a continuing basis.

1) Technical Training (i.e. Initial and Recurrent training)

a) Simulation
b) Case Studies

2) Interdepartmental Training (i.e. symposiums, seminars, workshops)

a) Problem Solving
b) Stress Awareness
c) Role Reversal
d) Inquiry/Advocacy/Assertion
e) Conflict Resolution

Effective resource management skills are not gained by passively listening to classroom lectures, but by active participation and practice, including the use of simulations such as Line-Operational Simulation (LOS).

Video feedback during debriefing of simulation scenarios and other training should optimally be provided so that dispatchers could assess their skills not only as an individual but as an integral part of the overall operating environment.

The uneasiness created by the presence of videotaping equipment can and should be mitigated by implementing, explaining and then rigidly adhering to a policy of bulk erasure of each tape in the presence of the dispatcher at the end of the debriefing. Such a policy prevents a trainee from keeping a copy of the training session tape, thereby ensuring the credibility of the program.

8) EVALUATION

A) Self - In order to provide a maximum learning environment for all dispatchers, developers/ facilitators should use every available opportunity to emphasize the importance of dispatcher coordination skills and techniques. This is accomplished best by having dispatchers examine their own performance and behavior, with the assistance of a trained developer/facilitator who can point out both positive and negative aspects of DRM performance. Whenever highly effective examples of performance are observed, it is vital that these positive behaviors be discussed and reinforced. Debriefing and critique skills are important tools for developers/facilitators to acquire and utilize.

B) Group/Program - DRM training is a dynamic concept that will continue to be refined and improved. For this reason, it is vitally important that each program be assessed to determine whether it is achieving its stated goal. Each organization should design a systematic assessment program both as a means of tracking the effects of its training program and as a means of making continuous improvements and defining critical topics for periodic training. Assessment of the <u>training program</u> should include observation of the training process and participant's reports using a standard survey method.

C) In order to ensure adequate coverage with such case studies, the FAA, airlines and relevant professional groups (with pilots, ATC and dispatchers as members) should cooperate to develop a national repository of representative cases. Access to such cases should be provided to everyone in the aviation community upon request.

9) GLOSSARY

A) Station Personnel - Employees of an air carrier or contract representatives of an air carrier at a given station/airport.

B) Approved Meteorology Source - Source(s) of meteorological information approved for user in the air carrier's operations specifications.

C) Load Planners - Personnel, in addition to the dispatcher, to whom the responsibilities of preparing the load manifest (FAR 121.665) are delegated.

D) Crew Schedulers - Personnel, in addition to the dispatcher, to whom the responsibilities of monitoring crew qualifications and time legality (FAR 121, Subpart O, Q, R) are delegated.

FAA Action: Certification Maintenance Requirements; Advisory Circular 28-19 -- Regulatory and Guidance Library