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ASSEMBLY — 38TH SESSION

TECHNICAL COMMISSION

Agenda Item 31: Aviation Safety – Emerging Issues

GUIDELINES FOR EDUCATION AND TRAINING TO ENABLE AIRLINE WORKERS TO RECOGNIZE, AND RESPOND TO AIRCRAFT AIR SUPPLY SYSTEM FUMES

(Presented by the International Transport Workers' Federation and the International Federation of Air Line Pilots' Associations)

EXECUTIVE SUMMARY

Inflight exposure to oil fumes sourced to the aircraft air supply system can compromise flight safety when crewmembers experience acute symptoms that either slow their reaction time or impair their decision-making abilities. Authoritative bodies are increasingly recognizing the benefits of educating and training airline crewmembers to enable them to more reliably recognize and respond to oil fumes in the air supply system. There is also a benefit to training maintenance workers to more reliably recognize and remedy oil-contaminated air supply systems. The benefits of implementing such education/training programs are three-fold: First, the health and safety consequences of exposure to contaminated ventilation supply air should be mitigated. Second, reducing the frequency of fume events should reduce the frequency of diversions and other disruptions to flight schedules. Third, airlines should expect to reduce the financial costs of fume events, which are especially significant when an unscheduled routing change and medical expenses for affected crews are necessary.

Action: The Assembly is invited to:

a) note the implications to flight safety from exposure to oil fumes sourced to the aircraft air supply system; and
b) request the Council to develop guidance material to improve the education and training of flight crew, cabin crew, and maintenance technicians in fume related events.

Strategic Objectives:	This working paper relates to the Safety Strategic.
Financial implications:	ITF and IFALPA human resources will be offered to help develop guidance material and there will be minimal costs to operators for training which would likely result in a reduction to operating costs.
References:	

(3 pages)

1. INTRODUCTION

1.1 There are many sources of smoke, haze, and odours (fumes) in the cabin and flight deck air supply system, including engine oil, hydraulic fluid, engine exhaust, ground service vehicles, fuel, de-icing fluid, and ozone. Of these, engine oil and hydraulic smoke/fumes have received the most attention because of their toxicity.

1.2 According to a report from Australia ("Contamination of aircraft cabin air by bleed air – a review of the evidence" – Expert Panel on Aircraft Air Quality) which reviewed evidence up until September 2009, the acute symptoms of fume events can be categorized as irritant effects (including irritated eyes/throat, respiratory symptoms, irritated skin) and central nervous system effects (including impaired memory, concentration deficits, confusion, lethargy, neuromuscular incoordination, and headaches). As these symptoms may influence flight safety, crews should be educated on this issue, and especially on the appropriate actions to respond to a fume event.

2. DISCUSSION

2.1 There are official reports of pilot and cabin crew impairment described as either likely or definitively caused by exposure to oil-contaminated ventilation supply air inflight from multiple member states. The ITF and IFALPA note that cabin crewmembers and maintenance workers consistently lack education and training regarding both awareness of, and effective response to, air supply system-sourced fumes. Further, ITF and IFALPA note that pilots would benefit from additional education and training when fumes are present without visible smoke or haze.

2.2 Increasingly, authoritative bodies are recognizing the need to ensure that pilots are trained to don oxygen if they suspect air supply system contamination with oil fumes. Current aviation regulations intended to ensure that pilots are trained in emergency procedures focus largely on fire and any accompanying smoke and fumes, but may fail to adequately train pilots to recognize and respond to fumes in the absence of smoke and potential fire.

2.3 Cabin crew need to be trained to recognize the presence of air supply system-sourced fumes, and to establish and maintain effective communications with the pilots during an incident. Current aviation regulations intended to train cabin crew focus largely on fire and smoke, but fail to adequately train cabin crew to recognize and respond to fumes in the absence of smoke and potential fire.

2.4 Inadequate maintenance on contaminated systems can lead to repeat events with associated health, safety, and economic consequences. A targeted training program to enable maintenance workers to more reliably identify and remedy the source of air supply contamination with engine oil fumes should reduce the frequency of such repeat events.

2.5 Recognized means to reduce the frequency and mitigate the impact of on-board exposure to air supply system-sourced fumes include preventive maintenance, standardized investigative maintenance practices post-incident, on-board chemical sensors, and less toxic engine oil additives. Bleed air filtration may be another means of mitigation, but options are still under development.

2.6 Benefits of implementing airline worker education/training regarding fumes in the air supply system are three-fold: First, the health and safety consequences of exposure to contaminated ventilation supply air would be mitigated because exposures would either be prevented or minimized. Second, airlines should expect to reduce fume-related diversions and other schedule disruptions, improving reliability for passengers and crews. Third, airlines should expect to reduce the financial costs of fume events, which include ground time, fuel, maintenance time, flight crew time, agent time for re-bookings, etc.

3. CONCLUSION

3.1 Utilizing their global reach and commitment to improving flight safety, the ITF and IFALPA believe that ICAO is best-positioned to develop training and education guidance material with recommended measures intended to enable airline workers to more quickly recognize the presence of air supply system-sourced fumes, and to respond appropriately. The development of these training and education guidelines supports the ICAO Strategic Objective on Safety which recognizes the utility of implementing targeted safety programmes.

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