would be no retrofit costs. (After additional analysis, the FAA has decided that this topic needs to be specifically addressed in a separate rulemaking. Thus, there would be no compliance costs for this in the commuter rule.)

Landing Gear Aural Warning. Two manufacturers and one operator report that all of their 10-to-19-seat airplanes have aural landing gear warnings. Two of these commenters report no compliance cost. The other commenter reports a one-time manufacturer's cost of \$2,620 to obtain FAA approval of the flight-manual changes.

*FAA Response:* The FAA disagrees with the commenter who reported a one-time cost because the presence of the aural warning device in existing airplanes means that this equipment was already included and approved in the airplane flight manual. As the FAA believes that all affected airplanes already employ an aural warning system, there are no compliance costs.

Ditching Approval. There were five commenters who addressed this issue. One commenter reports a \$7,430 cost for its DeHavilland Twin Otters to comply with this provision. Another commenter reports that it would be impossible for the Twin Otter to comply with the ditching requirement due to its fixed landing gear; also the commenter says that other airplane operators would incur a \$180 per airplane paperwork cost to demonstrate compliance. Another commenter reports that the costs would be extremely high. Two commenters report that there would be a \$1,500 one-time paperwork cost to demonstrate compliance to the FAA for revision of the approved flight manual.

*FAA Response:* The FAA agrees with the commenters. For the final rule, the compliance period will be extended to 15 years. Thus, the potential cost of compliance will be minimal.

Take-Off Warning System. One manufacturer reports that the per airplane cost to install take-off warning devices would be \$24,920 on a newlymanufactured airplane; \$26,500 for a retrofit; and \$150,260 for a one-time engineering, development, testing, and FAA-approval cost. Also, these devices would weigh 5 lbs. Another commenter reports that it would cost \$12,600 per airplane to install a 2 lb. take-off warning device on a newly manufactured airplane. One commenter reports that it would cost \$11,350 per airplane to install a take-off warning device on a newly manufactured airplane.

*FAA Response:* The FAA estimates that the per airplane cost for a newly manufactured airplane would be

\$16,000 for engineering, developing, testing, and installing, plus an annual \$1,600 inspection, maintenance, and repair cost. The FAA also did not estimate any additional weight for this device. However, after further technical review, the FAA concludes that none of these airplane models (except the Beech 99) would need a takeoff warning system because a takeoff with a device in the most adverse position does not create a hazardous condition. For the Beech 99, that problem was resolved when the FAA issued an Airworthiness Directive (AD) requiring these airplanes to install a takeoff warning system. Thus, there are no compliance costs associated with this requirement.

Third-Attitude Indicator. Two commenters report that there would be no compliance cost for newlymanufactured airplanes because third attitude indicators are standard equipment. One of these commenters reports that there would be a \$1,500 one-time manufacturer's paperwork cost to obtain FAA approval to changes in the flight manual. The same commenter reports that it would cost \$10,865 to retrofit an airplane. The other commenter reports that the per-airplaneretrofit cost would be between \$40,600 for a Beech 1900C and \$48,800 for a Beech 99, and that a third-attitude indicator would weigh 15 lbs. An airplane operator reports that it would cost \$40,000 per airplane to retrofit its Beech 1900Cs. Another airplane operator reports that it would cost \$17,000 per airplane to retrofit its DeHavilland Twin Otters. Finally, a commenter reports that it would cost \$53,170 per airplane to retrofit airplanes. In addition to the reported costs, the commenter states that there was insufficient time for operators to retrofit these airplanes within the oneyear period proposed by the NPRM.

*FAA Response:* The FAA estimates that the per airplane cost would be \$16,000 for a retrofit and \$8,000 for a newly-manufactured airplane. The annual maintenance, inspection, and repair costs would be 10 percent of the retrofitting costs. The third-attitude indicator and wiring would weigh 5 lbs. Based on the manufacturer information, this device has been installed on all turbo-jet and commuter category airplanes.

The FAA contends that its cost estimates in the NPRM are valid. However, the FAA accepts the comment that the additional weight would be 15 lbs. After additional analysis, and in light of the potential high-costs of this proposal, the FAA believes that this requirement should be handled consistently with the principle espoused in the performance requirements. On that basis, the final rule will have a 15-year retrofit compliance period for affected 10–19 seat airplanes and predecessor category.

Lavatory Fire Protection. Concerning 10-to-19 seat airplanes, two manufacturer commenters state that very few of their airplanes had lavatories. For those few that do, one manufacturer reports that installing a lavatory smoke detector and a built-in automatic fire extinguisher in each lavatory-waste receptacle would cost \$59,200 per retrofit, \$8,800 for a newly manufactured airplane, and would weigh 10 lbs. The other commenter reports it would cost \$8,350 for a retrofit, \$7,800 for a newly manufactured airplane, involve a onetime engineering cost of \$49,000, and would increase each airplane's weight by 16 lbs. Another commenter reports that a retrofit would cost \$725.

Concerning 20-to-30-seat airplanes, two manufacturer commenters report that it would cost \$4,000 to retrofit their airplane lavatories. One of these commenters also states that only one half of the newly manufactured airplanes with lavatories have these devices. Two airlines and one association report that it would cost \$2,500 to retrofit their airplane lavatories. One of the airlines reports that these devices would weigh 20 lbs.

FAA Response: Section 121.308(a) requires each lavatory to have a smoke detector system connected to either: (1) A warning light in the flight deck; or (2) a warning light or an aural warning in the passenger cabin that can be readily detected by a flight attendant. Section 121.308(b) requires each lavatory to have a built-in automatic fire extinguisher in each waste-disposal receptacle in the lavatory. These requirements are also found in section 25.854 but only for airplanes type certificated after 1991. There are no similar provisions in part 135 or part 23.

In reviewing these comments for the 20-to-30-seat airplanes, the FAA believes, although these commenters did not document the sources for their estimates, that these estimates appear to be based on the cost of a flight deck warning light system, which would involve some airplane rewiring. However, the FAA's estimate is based on the operator electing the second option allowed in the proposed rule—an aural warning device that could be heard by the flight attendant. That option is clearly the cost-effective option for 20-to-30-seat airplanes that are required to have a flight attendant.

These provisions are largely unimportant for the 10-to-19-seat