DEPARTMENT OF ENERGY

10 CFR Part 431


RIN 1904–AC28

Increased Scope of Coverage for Electric Motors


ACTION: Request for information (RFI).

SUMMARY: The U.S. Department of Energy (DOE or the Department) seeks certain information to help inform its current rulemaking to set energy conservation standards for electric motors. Specifically, DOE seeks information to assist DOE in determining whether to develop energy conservation standards for certain types of electric motors that are currently unregulated by any standards. Should DOE receive sufficient information supporting the inclusion of these motor types, DOE will consider including these motor types in the electric motors standards rulemaking.

DATES: Written comments and information are requested on or before April 19, 2011.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at http://www.regulations.gov. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2010–BT–STD–0027, by any of the following methods:

- E-mail: Electromotors–2010–STD–0027@ee.doe.gov. Include docket number EERE–2010–BT–STD–0027 and/or RIN 1904–AC28 in the subject line of the message.


Instructions: All submissions received must include the agency name and docket number or RIN for this rulemaking.

Docket: For access to the docket to read background documents, or comments received, go to the Federal eRulemaking Portal at http://www.regulations.gov.


SUPPLEMENTARY INFORMATION:

Authority and Background: DOE intends to publish a final rule determining whether to amend the current energy conservation standards for electric motors. On September 28, 2010, DOE published a notice of availability of the “Energy Conservation Standards Rulemaking Framework Document for Electric Motors” (Framework Document), which describes the procedural and analytical approaches DOE anticipates using in its evaluation. 75 FR 59657. DOE must publish a final rule determining whether to amend the electric motors standards by December 19, 2012. (42 U.S.C. 6313(b)(4)(B)).

The current energy conservation standards for electric motors, as set forth in the Energy Independence and Security Act of 2007 (EISA 2007) amendments to the Energy Policy and Conservation Act (ECPA), establish energy conservation standards for two types of general purpose electric motors: (1) Subtype I, and (2) subtype II. (42 U.S.C. 6313(b)(2)(A)) These broad categories include various types of motors, such as the National Electrical Manufacturers Association (NEMA) Design B motors rated from 1 to 500 horsepower, NEMA Design A and C motors rated from 1 to 200 horsepower, vertical solid shaft motors, and electric motors that are not general purpose motors and cannot be used in most general purpose applications. (42 U.S.C. 6311(13)(A)–(B); 10 CFR 431.12).

During the Framework Document comment period, energy efficiency advocates (the Appliance Standards Awareness Project (ASAP) and the American Council for an Energy-Efficient Economy (ACEEE)), manufacturers (NEMA and Baldor), and utilities (the Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SNGC), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE)) urged DOE to consider including additional motor types currently without energy conservation standards in DOE’s analyses and establishing such standards. (ASAP/NEMA, No. 12 at p. 1; ACEEE, No. 10 at p. 1; Baldor, No. 8 at p. 2; PG&E/SNGC/SDG&E/SCE, No. 11 at p. 1). In the commenters’ view, this approach would more effectively increase energy savings than setting more stringent standards for the electric motors that are currently being examined as part of the energy conservation standards rulemaking that DOE has initiated. See 75 FR 59657 (September 28, 2010). These parties also asserted that expanding the scope of DOE’s current efforts, along with specially tailored exemptions for certain types of electric motors, would enable DOE to simplify its compliance and enforcement efforts. (ASAP/NEMA, No. 12 at p. 1–2; ACEEE, No. 10 at p. 1).

In light of these comments, DOE requests information regarding definite purpose and special purpose motors, including the additional motor types that DOE describes in Table 1 and Table 2. DOE is considering including definite and special purpose motors in the electric motors standards rulemaking.

- Notations of this form appear throughout this document and identify statements made in written comments or at public hearings that DOE has received and has included in the docket for this rulemaking. For example, “NEMA, No. 12 at p. 7” refers to a comment: (1) From the National Electrical Manufacturers Association; (2) in document number 12 in the docket of this rulemaking; and (3) appearing on page 7 of the submission, while “Baldor, Framework Public Meeting Transcript, p. 126” refers to a comment: (1) From Baldor Electric Company; (2) in the transcript for the public meeting on the Framework document; and (3) appearing on page 126 of the transcript.
Although DOE is particularly interested in information on the specific motor types identified in comments received in response to the Framework Document, commenters are welcome to provide information similar to the information sought for any additional motor type that the commenter believes should be included in this rulemaking and the reasons for their inclusion as part of the standards rulemaking.

**Description:** Public comments are sought from interested parties regarding establishment of energy conservation standards for several types of definite and special purpose motors for which EISA 2007 did not provide energy conservation standards. DOE has the authority to set energy conservation standards for a wider range of electric motors than those classified as general purpose electric motors (e.g., definite or special purpose motors). The Energy Policy Act of 1992 ("EPAct 1992") amendments to EPCA defined "electric motor" to include a certain type of "general purpose" motor. (42 U.S.C. 6311(13)(A) (1992)) EPAct 1992 set energy conservation standards for such "electric motors" and explicitly stated that the standards did not apply to definite purpose or special purpose motors. (42 U.S.C. 6313(b)(1)) (1992)) In EISA 2007, Congress removed the definition of "electric motors," added a definitional heading for "electric motors," and then denoted several types of "electric motors," including general purpose electric motors, definite purpose motors, and special purpose motors. (See 42 U.S.C. 6311(13) (2010)) EISA 2007 also amended the energy conservation standards for general purpose motors and removed the exclusion for definite purpose and special purpose motors. (42 U.S.C. 6313(b)[2]–[3] (2010) Based on these changes, in spite of the absence of any current standards for these types of motors, it is DOE's view that definite and special purpose motors are "electric motor" categories covered under EPCA. Accordingly, DOE is considering establishing standards for certain definite and special purpose motors in the context of the electric motors rulemaking.

While existing energy conservation standards cover a majority of the electric motors market, based on DOE's initial findings, several categories of the definite or special purpose motors that interested parties recommended for standards coverage have significant sales volumes, and thus energy savings potential. Adding these motors to the group of motors for which DOE has already set energy conservation standards would also reduce the incentive for manufacturers to attempt to circumvent existing or amended standards by substituting unregulated motors for regulated motors. To this end, DOE examined each motor type to determine whether it would require an engineering analysis separate from covered general purpose electric motors, and whether it could be evaluated using DOE's current test procedure, located in subpart B of 10 CFR part 431.

To inform its decision-making process, DOE seeks information regarding whether any of the motor types listed in Table 1 below have any unique design features that affect the cost or efficiency of the motor. For instance, DOE is interested in whether a particular design feature for a brake motor would prevent it from meeting an efficiency level that its general purpose counterpart can meet. Furthermore, if the cost-efficiency relationship for a comparable general purpose motor cannot be applied to the motor type in question, DOE requests information on the relationship between cost and efficiency. DOE seeks information on whether a scaling relationship can be used to extend the cost-efficiency relationship of a general purpose motor to the motor type in question.

DOE also requests comments on whether inclusion of each of the motor types listed in Table 1 in the electric motors rulemaking would require changes to the current DOE test procedure. DOE requests information on whether the change would require that a new test method or test procedure be incorporated by reference, or whether it would require a slight modification or clarification as to how the test is performed, similar to what is currently done for vertical solid shaft motors, which, as DOE understands the current practice, are tested in the horizontal configuration. If a new test procedure is needed, DOE requests information on any test procedures or test methods that are applicable and available and the reasons for those procedures or methods.

Table 1 summarizes DOE’s preliminary findings for each of the motor types that stakeholders support including within the electric motors standards rulemaking. DOE requests comment on the preliminary conclusions included in the table, as well as the market share of each of these motor types, and the potential energy saved by including each motor type. The market analysis consists of motors sold in the U.S. by NEMA-member companies and does not include any imports. DOE also requests comment on whether there are any other types of motors not listed in Table 1 that DOE should consider including in the standards rulemaking.

<table>
<thead>
<tr>
<th>Motor type</th>
<th>Requires separate analysis from general purpose motors?</th>
<th>Requires changes to the DOE test procedure?</th>
<th>Approximate percentage of the motor market</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEMA Design A Motors from 200 to 500 HP.</td>
<td>No ..........</td>
<td>No ..........</td>
<td>Unknown</td>
<td>DOE believes that these motors are similar to the lower horsepower Design A electric motors already covered.</td>
</tr>
<tr>
<td>Brake Motors</td>
<td>No ..........</td>
<td>No ..........</td>
<td>10.1%</td>
<td>DOE believes that when not applied, the brake unit does not interfere with normal operation and therefore the motor can be tested with the brake in the off position using the current test procedure. DOE believes that the cost-efficiency relationship is similar to that of a general purpose electric motor.</td>
</tr>
<tr>
<td>Motor type</td>
<td>Requires separate analysis from general purpose motors?</td>
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</tr>
<tr>
<td>Partial Motors or Component Sets</td>
<td>Yes</td>
<td>Yes</td>
<td>11.9%</td>
<td>DOE has been advised that these motors do not include a full frame, front plate, bearings, shaft, or shaft support. Because the ability of these components to dissipate heat is strongly dependent on the type of frame, bearings, etc. chosen, the efficiency of these motors is therefore dependent on the application. Because of this, they would also require a new test procedure.</td>
</tr>
<tr>
<td>Integral Shafted Partial Motors</td>
<td>No</td>
<td>No</td>
<td></td>
<td>DOE believes that unlike partial motors or component sets, integral shafted partial motors are only missing the drive end face plate, and therefore can be tested with a “dummy test bracket” using the current test procedure. DOE believes that when equipped with a dummy end plate, the cost-efficiency relationship of this type of motor would be similar to that of a general purpose motor.</td>
</tr>
<tr>
<td>Vertical Hollow Shaft Motors</td>
<td>No</td>
<td>No</td>
<td>0.8%</td>
<td>DOE believes that these motors do not differ from vertical solid shaft motors in performance or electrical characteristics. When tested with their bearings swapped for ball bearings and in a horizontal configuration, these motors can meet designated efficiency levels of general purpose motors. DOE believes that the test procedure would mirror that performed on vertical solid shaft motors, which are currently covered by DOE standards.</td>
</tr>
<tr>
<td>Integral Gear Motors</td>
<td>No</td>
<td>No</td>
<td>15.6%</td>
<td>DOE has been advised that these motors are almost identical to integral shafted partial motors in function, and therefore can be tested similarly, with a “dummy test bracket” in lieu of a standard face plate. As with integral shafted motors, DOE believes that when equipped with a dummy end plate, the cost-efficiency relationship of this type of motor would be similar to that of a general purpose motor.</td>
</tr>
<tr>
<td>TENV Motors</td>
<td>Yes</td>
<td>No</td>
<td>3.0%</td>
<td>DOE understands that these motors have no built-in fan, and therefore require enough exterior clearance to allow for free convection. Furthermore, the frame is generally larger to aid in dissipation of heat. Because of this, DOE believes that the cost-efficiency relationship for a general purpose motor cannot be directly applied to a TENV motor, as TENV motors have unique efficiency-affecting features that distinguish them from general purpose motors.</td>
</tr>
</tbody>
</table>
TABLE 1—ELECTRIC MOTOR TYPES WHICH STAKEHOLDER COMMENTS INDICATED SHOULD BE INCLUDED IN THE STANDARDS RULEMAKING—Continued

<table>
<thead>
<tr>
<th>Motor type</th>
<th>Requires separate analysis from general purpose motors?</th>
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<tbody>
<tr>
<td>TEAO Motors</td>
<td>Yes .........</td>
<td>Yes .............</td>
<td></td>
<td>DOE understands that these motors are intended to be cooled by ventilation means external to the motor and that the motor must be provided with additional ventilation to prevent it from overheating. DOE believes the addition of a separate means for cooling would require a new test procedure. Furthermore, DOE believes that the cost-efficiency relationship for a general purpose motor cannot be directly applied to a TEAO motor, as TEAO motors have unique efficiency-affecting features that distinguish them from general purpose motors.</td>
</tr>
</tbody>
</table>

The joint comments from ASAP and NEMA also identified several types of motors that the commenters believe should not be included in the standards rulemaking. (ASAP/NEMA, No. 12 at p. 9) These motors are presented in Table 2. To inform its decision-making process, DOE seeks information regarding the merits of this recommendation and whether any of the motor types listed in Table 2 have any unique design features that affect the cost or efficiency of the motor. Furthermore, if the cost-efficiency relationship for a comparable general purpose motor cannot be applied to the motor type in question, DOE requests information on the relationship between cost and efficiency. DOE seeks information on whether a scaling relationship can be used to extend the cost-efficiency relationship of a general purpose motor to the motor type in question.

DOE also requests comments on whether inclusion of each of the motor types listed in Table 2 in the electric motors rulemaking would require changes to the current DOE test procedure and if so, whether those changes would require that a new test method or test procedure be incorporated by reference. If a new test procedure is needed, DOE requests information on any test procedures or test methods that are applicable and available and why those procedures or methods are needed.

Table 2 summarizes DOE’s preliminary findings for each of the motor types that ASAP and NEMA do not support for inclusion within the electric motors standards rulemaking. DOE requests comment on the preliminary conclusions included in Table 2, as well as the market share of each of these motor types and their potential energy savings.

TABLE 2—ELECTRIC MOTOR TYPES WHICH STAKEHOLDER COMMENTS INDICATED SHOULD BE EXCLUDED FROM THE STANDARDS RULEMAKING

<table>
<thead>
<tr>
<th>Motor type</th>
<th>Requires separate analysis from general purpose motors?</th>
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<tr>
<td>Multispeed Motors</td>
<td>Yes .............</td>
<td>Yes .........................................</td>
<td>The current standards only cover single-speed motors, and therefore, DOE believes that the cost-efficiency relationship for general purpose motors cannot be directly applied to multispeed motors. Also, these motors would require a new test procedure.</td>
</tr>
<tr>
<td>DC Motors</td>
<td>Yes .............</td>
<td>Yes .........................................</td>
<td>The current standards only cover AC motors, and therefore, DOE believes that the cost-efficiency relationship for general purpose motors cannot be directly applied to DC motors. Also, these motors would require a new test procedure.</td>
</tr>
<tr>
<td>Single Phase Motors</td>
<td>Yes .............</td>
<td>Yes .........................................</td>
<td>The current standards only cover polyphase motors, and therefore, DOE believes that the cost-efficiency relationship for general purpose motors cannot be directly applied to single phase motors. Also, these motors would require a new test procedure.</td>
</tr>
<tr>
<td>Liquid Cooled and Submersible or Immersible Motors.</td>
<td>DOE Requests Comment.</td>
<td>Yes .........................................</td>
<td>DOE understands that the submersible motor is completely sealed for use in submersible applications, and that cooling is accomplished by surrounding liquid. DOE requests comment on whether the cost-efficiency relationship for a general purpose motor can be directly applied to a submersible motor.</td>
</tr>
</tbody>
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TABLE 2—ELECTRIC MOTOR TYPES WHICH STAKEHOLDER COMMENTS INDICATED SHOULD BE EXCLUDED FROM THE STANDARDS RULEMAKING—Continued

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<tbody>
<tr>
<td>Electronically Commutated Motors</td>
<td>Yes</td>
<td>Yes</td>
<td>The current standards only cover squirrel-cage induction motors, and therefore, DOE believes that the cost-efficiency relationship for general purpose motors cannot be directly applied to electrically commutated motors. Also, these motors would require a new test procedure.</td>
</tr>
<tr>
<td>Switched Reluctance Motors</td>
<td>Yes</td>
<td>Yes</td>
<td>The current standards only cover squirrel-cage induction motors, and therefore, DOE believes that the cost-efficiency relationship for general purpose motors cannot be directly applied to switched reluctance motors. Also, these motors would require a new test procedure.</td>
</tr>
<tr>
<td>Interior Permanent Magnet Motors</td>
<td>Yes</td>
<td>Yes</td>
<td>The current standards only cover squirrel-cage induction motors, and therefore, DOE believes that the cost-efficiency relationship for general purpose motors cannot be directly applied to interior permanent magnet motors. Also, these motors would require a new test procedure.</td>
</tr>
<tr>
<td>Inverter-duty Motors</td>
<td>Yes</td>
<td>No</td>
<td>DOE is aware that these motors are designed to run on variable frequency drives and typically are designed to run at lower speeds. Because they are designed to run at lower speeds where they won’t be cooled as effectively, in order to prevent the motor from overheating, the insulation differs from that used in a general purpose motor. This difference in internal design leads to a different cost-efficiency curve.</td>
</tr>
<tr>
<td>Intermittent-duty Motors</td>
<td>Yes</td>
<td>Yes</td>
<td>DOE is aware that these motors are designed to run on an intermittent basis to allow for proper cooling without overheating. The current standards and test procedure only cover continuous duty motors. Therefore, DOE believes that the cost-efficiency relationship for general purpose motors cannot be directly applied to intermittent-duty motors. Also, these motors would require a new test procedure.</td>
</tr>
</tbody>
</table>

![In addition to the above issues, DOE seeks information and comment regarding the possible consolidation of two different sets of motors into one equipment class for the purposes of its analysis. Specifically, Baldor and NEMA both recommended that DOE combine Design A and Design B motors into a single equipment class. (Baldor, Framework Public Meeting Transcript, p.77; NEMA, No. 13, p.4) “Design A” and “Design B” are NEMA-developed designations that define a motor’s performance characteristics such as the locked-rotor torque, pull-up torque, breakdown torque, inrush current, and locked-rotor current. These motors are identical except with respect to the limit on inrush current—Design B motors are limited to certain prescribed levels while Design A motors have no such limitation. DOE is interested in receiving information about any differences in efficiencies between similar Design A and Design B motors. DOE is also interested in receiving information about the respective market shares of Design A and Design B motors. Baldor and NEMA made a similar recommendation for U-frame and T-frame motors. (Baldor, Framework Public Meeting Transcript, p.126; NEMA, No. 13, p.13) T-frame motors, which are more compact than U-frame motors, are increasingly being used as replacements for their U-frame counterparts. While installing a T-frame motor into a U-frame application requires minor adjustments (e.g., shimming of the mounting plate and/or using a different shaft coupling, which are changes that a technician can make expeditiously) to enable it to fit within a U-frame application, this motor would provide the same functionality as the U-frame motor it replaces. Partly because of their smaller size and lower weight for similarly rated motors (i.e., horsepower), information reviewed by DOE indicates that T-frame motors are replacing U-frame motors in both new and existing applications. (NEMA/ACEEE, No. 25, p. 6) DOE is interested in receiving information about the difference in efficiencies between similar T-frame and U-frame motors. DOE is also interested in receiving information about the respective market shares of T-frame and U-frame motors.]

PUBLIC PARTICIPATION

A. Submission of Information

DOE will accept comments in response to this RFI under the timeline provided in the DATES section. Comments submitted to the Department through the eRulemaking Portal or by e-mail should be provided in WordPerfect, Microsoft Word, portable document format (PDF), or text file format. Those responding should avoid the use of special characters or any form of encryption. No facsimiles will be accepted. Comments submitted in response to this notice will become a matter of public record and will be made publicly available.

B. Issues on Which DOE Seeks Information

For this RFI, DOE requests comments, information, and recommendations on the following concepts for the purpose of determining whether additional motor types currently without energy...
conservation standards can and should be assigned energy conservation standards. DOE also seeks information and comment regarding the possible consolidation of NEMA Design A and Design B motors into one equipment class and NEMA T- and U-frame motors into one equipment class for the purpose of its analysis and energy conservation standards.

1. DOE requests comment on the preliminary conclusions included in Table 1 and Table 2.

2. DOE seeks comment on whether the analyses performed for motors that currently have standards can be extended to those electric motors listed in Table 1 and Table 2.

3. DOE seeks information regarding whether any of the motor types listed in Table 1 and Table 2 have any unique design features that affect the cost or efficiency of the motor compared to general purpose motors.

a. If the cost-efficiency relationship for a comparable general purpose motor cannot be applied to the motor type in question, DOE requests information on the relationship between cost and efficiency.

b. DOE requests information on whether a scaling relationship can be used to extend the cost-efficiency relationship of a general purpose motor to the motor type in question.

4. DOE requests comment on the market share of each of these motor types listed in Table 1 and Table 2.

5. DOE requests comment on the potential energy saved by including each motor type listed in Table 1 and Table 2 in the standards rulemaking.

6. DOE seeks information on methods for testing the motors listed in Table 1 and Table 2, and how they may differ from the current test procedures for electric motors. If a new test procedure is needed, DOE requests information on the reasons why such a new procedure is needed and the current availability and applicability of any test procedures or test methods. DOE also seeks confirmation of the accuracy of its understanding with respect to the testing of vertical shaft motors.

7. DOE seeks information on any other types of definite purpose or special purpose motors not listed in Table 1 and Table 2 that DOE should consider including in this rulemaking.

8. DOE seeks comment on the possible consolidation of NEMA Design A and Design B motors into one equipment class, and NEMA T- and U-frame motors into one equipment class.

a. What are the possible differences in achievable efficiency between Design A and Design B motors?

b. What are the respective market shares of Design A and Design B motors?

c. What are the possible differences in achievable efficiency between U-frame and T-frame motors?

d. What are the respective market shares of U-frame and T-frame motors?


Issued in Washington, DC, on March 24, 2011.

Kathleen B. Hogan,

[FR Doc. 2011–7440 Filed 3–29–11; 8:45 am]
BILLING CODE 6450–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM451; Notice No. 25–11–10–SC]

Special Conditions: Bombardier Model BD–700–1A10 and BD–700–1A11 Airplanes, Head-Up Display (HUD) With Video Synthetic Vision System (SVS)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for Bombardier Model BD–700–1A10 and BD–700–1A11 airplanes. These airplanes, as modified by Bombardier Inc., will have a novel or unusual design features associated with a SVS that displays video imagery on the HUD. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: We must receive your comments by April 19, 2011.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM–113), Docket No. NM451, 1601 Lind Avenue, SW., Renton, Washington 98057–3356. You may deliver two copies to the Transport Airplane Directorate at the above address. You must mark your comments: Docket No. NM451. You can inspect comments in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.


SUPPLEMENTARY INFORMATION:

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. You can inspect the docket before and after the comment closing date. If you wish to review the docket in person, go to the address in the ADDRESSES section of this preamble between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

If you want us to acknowledge receipt of your comments on this proposal, include with your comments a self-addressed, stamped postcard on which you have written the docket number. We will stamp the date on the postcard and mail it back to you.

Background

On January 26, 2007, Transport Canada Civil Aviation (TCCA), on behalf of Bombardier Inc., located in Montreal Canada, applied to the New York Aircraft Certification Office (NYACO) for FAA approval of a type-design change on the Bombardier Model BD–700–1A10 and BD–700–1A11 airplanes. Per Type Certificate Data Sheet (TCDS) T00003NY, those aircraft models are known under the marketing designation of Global Express and Global 5000, respectively. The change is to introduce the Rockwell-Collins avionics suite to replace the existing Honeywell Primus 2000EP avionics suite. It includes the installation of a SVS that displays video imagery.

Video display on the HUD constitutes a new and novel technology for which the