



SERVICE BULLETIN

No. 683

Piper Aircraft Corporation

Lock Haven, Pennsylvania, U.S.A.

Modification FAA DOA EA-1 Approved

May 16, 1980

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Subject: Propeller Feathering, Minimum Engine RPM

Models Affected:

PA-23 and PA-23-160 Apache
PA-23-235 Apache
PA-23-250 Aztec
PA-23-250 Aztec (Six Place)

Serial Numbers Affected:

23-1 through 23-2046
27-505 through 27-622
27-1 through 27-504
27-2000 through 27-2504

NOTE: This Service Bulletin **applies** to all aircraft which use
Airplane Flight Manuals with the following Report numbers:

Report 813	Report 948	Report 1036	Report 1092	Report 1204
Report 832	Report 985	Report 1076	Report 1159	Report 1207

Compliance Time: Upon receipt. Compliance and related logbook entry may be accomplished by the owner/operator.

Purpose:

Propeller feathering engine RPM is not correct as presented in the above-referenced Flight Manual reports, and should be revised from 500 RPM to 700 RPM. Allowing engine speed to fall below 700 RPM before initiating feathering procedures may result in an inability to feather the propeller.

This service release provides a copy of applicable revisions and instructions for revising affected Flight Manuals.

Instructions:

1. Identify your Flight Manual by reference to the "Report" No. on the upper right of each page.
2. From the attached revisions, select the one with a "Report" No. identical to that for your aircraft; detach applicable Revision log page and revised Manual pages.
3. Replace Revision log page and revised Flight Manual pages with appropriate attached pages; discard all non-applicable attached revisions.
4. Make logbook entry of compliance with Service Bulletin No. 683.

(over)

Material Required:

Flight Manual revisions as specified in Models Affected NOTE, above.

Availability of Parts:

One (1) each of appropriate revisions is attached. Additional copies are available through your Piper Field Service Facility.

Summary:

Compliance with this service release and log book entry may be accomplished by the aircraft owner/operator.

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LOCK HAVEN, PENNA.

REPORT..... 813
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MODEL..... PA-23

<u>Revision Number</u>	<u>Page Number</u>	<u>Description</u>	<u>Date</u>
None Recorded	7	Weight and Balance	7/22/54
	1,2,3,4, 7,9	Limitations/Procedures	12/10/54
A	3	Minimum RPM for Feathering	2/15/79

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Emergency Operation

A pressure cross feed valve is provided to increase the range during single engine emergency operating conditions. Fuel system operations is as follows:

1. Pressure cross feed "ON".
2. Main fuel valve of inoperative engine "ON".
3. Electric fuel pump of inoperative engine "ON".
4. Main fuel valve operating engine "OFF".

When fuel from tank of inoperative engine is exhausted, return to operating engine fuel system as follows:

1. Pressure cross feed "OFF".
2. Main valve operating engine "ON".
3. Electric fuel pump inoperative engine "OFF".

Propellers

Feathering Procedure

1. Operating Engine

- a. Throttle "OPEN" to maintain altitude and airspeed.
MINIMUM CONTROLLABLE SINGLE ENGINE SPEED 85 MPH TIAS.

2. Inoperative Engine

- a. Throttle "CLOSED".
- b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
- c. Mixture control "IDLE CUT-OFF".
- d. Ignition switches "OFF".
- e. Electric fuel pump (if in use) "OFF".
- f. Main valve "OFF".

Unfeathering Procedure

1. Inoperative Engine

- a. Turn main fuel valve "ON".
- b. Advance propeller control to low pitch position
- c. Rotate engine with starter until it will windmill by itself.
- d. Decrease propeller pitch control to cruise position.
- e. Turn ignition switches "ON".
- f. Advance mixture control to full rich
- g. Allow engine to idle at 1000 to 1500 RPM with carburetor heat "ON" until oil temperature begins to rise.
- h. Resynchronize engines.

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MODEL.....PA-23

<u>Revision Number</u>	<u>Page Number</u>	<u>Description</u>	<u>Date</u>
None Recorded	8	Weight and Balance	7/22/54
	4,6,8,10	Emergency Procedure	12/2/54
	6,7,8,10	Weight and Balance	
	9,10	Weight and Balance	3/26/56
	10,11, 13,14	Weight and Balance	5/27/57
A	3	Minimum RPM for Feathering	2/15/79

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2. PROCEDURES

Fuel System

Normal Operation

1. Take-Off and Landing
 - a. Main valves "ON"
 - b. Pressure cross feed "OFF"
 - c. Electric fuel pumps "ON"
2. Cruise
 - a. Main valves "ON"
 - b. Pressure cross feed "OFF"
 - c. Electric fuel pumps "OFF"

Emergency Operation

A pressure cross feed valve is provided to increase the range during single engine emergency operating conditions. Fuel system operation is as follows:

1. Pressure cross feed "ON"
2. Main fuel valve of inoperative engine "ON"
3. Electric fuel pump of inoperative engine "ON".
4. Main fuel valve operating engine "OFF".

When fuel from tank of inoperative engine is exhausted, return to operating engine fuel system as follows:

1. Pressure cross feed "OFF".
2. Main valve operating engine "ON".
3. Electric fuel pump inoperative engine "OFF".

Propellers

Feathering Procedure

1. Operating Engine
 - a. Throttle "OPEN" to maintain altitude and airspeed.
MINIMUM CONTROLLABLE SINGLE ENGINE SPEED 85 MPH T-AS.
2. Inoperative Engine
 - a. Throttle "CLOSED".
 - b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
 - c. Mixture control "IDLE CUT-OFF".
 - d. Ignition switches "OFF".
 - e. Electric fuel pump (if in use) "OFF".
 - f. Main valve "OFF".

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MODEL..... PA-23-160

<u>Revision Number</u>	<u>Page Number</u>	<u>Description</u>	<u>Date</u>
None Recorded	3	Emergency Procedures	5/7/58
	3	Emergency Procedures	10/3/58
	22,24,25,26	Weight & Balance	10/7/58
	3,4	Emergency Procedures	3/24/59
	21,23	Weight & Balance	4/7/59
	26	Weight & Balance	5/28/59
	22	Weight & Balance	10/6/59
	21,22	Weight & Balance	1/22/60
	2	Limitations	1/22/60
	1,2,3,5	Limitations/Emergency Procedures	5/23/60
	18,19,20	Weight & Balance	5/25/60
	26	Weight & Balance	11/15/60
	26	Weight & Balance	12/29/60
	24	Weight & Balance	2/23/61
	23	Weight & Balance	8/17/61
	22,26	Weight & Balance	10/12/61
	26	Weight & Balance	11/9/61
	21	Weight & Balance	6/28/62
	24	Weight & Balance	10/30/62
A	4	Minimum Feathering RPM	2/15/79

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MODEL PA-23"160"

Emergency Operation (Cont'd.)

When fuel from tank of inoperative engine is exhausted, return to operating engine fuel system as follows:

1. Pressure cross feed "OFF".
2. Main valve operating engine "ON".
3. Electric fuel pump inoperative engine "OFF".

Propellers

Feathering Procedure

1. Operating Engine

- a. Throttle "OPEN" to maintain altitude and airspeed.
MINIMUM CONTROLLABLE SINGLE ENGINE SPEED 72 MPH TIAS.

2. Inoperative Engine

- a. Throttle "CLOSED".
- b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
- c. Mixture control "IDLE CUT-OFF".
- d. Ignition switches "OFF".
- e. Electric fuel pump (if in use) "OFF".
- f. Main valve "OFF".

Unfeathering Procedure

1. Inoperative Engine

- a. Turn main fuel valve "ON".
- b. Advance propeller control to low pitch position.
- c. Rotate engine with starter until it will windmill by itself.
- d. Retard propeller pitch control to cruise position.
- e. Turn ignition switches "ON".
- f. Advance mixture control to full rich
- g. Allow engine to idle at 1000 to 1500 RPM with carburetor heat "ON" until oil temperature begins to rise.
- h. Resynchronize engines.

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MODEL PA-23

LOG OF REVISIONS

<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
1	3	Operation of Propeller Feathering System	5/9/58	
2	3,4	Modification to Operation of Propeller Feathering System	10/7/58	
3	4	Minimum RPM for Feathering	3/26/80	

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Feathering Procedure (Cont'd.)

2. Inoperative Engine

- a. Throttle "CLOSED"
- b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
- c. Mixture control "IDLE CUT-OFF"
- d. Ignition switches "OFF"
- e. Electric fuel pump "OFF"
- f. Main valve "OFF"

Unfeathering Procedure

1. Inoperative Engine

- a. Turn main fuel valve "ON"
- b. Advance propeller control to low pitch position.
- c. Rotate engine with starter until it will windmill by itself.
- d. Retard propeller pitch control to cruise position.
- e. Turn ignition switches "ON"
- f. Advance mixture control to full rich.
- g. Allow engine to idle at 1000 to 1500 RPM with carburetor heat "ON" until oil temperature begins to rise.
- h. Resynchronize engines.

Gear and Flap Extension - Emergency

1. Gear and Flap Extension with Hydraulic Hand Pump

In case of hydraulic pump failure, landing gear and flap extension may be accomplished through the use of the emergency hand pump by placing the pertinent selector handle in the down position and operating the manual pump as follows: Pull emergency pump handle out as far as possible. Pump handle up and down until pressure is built up in system and selector handle automatically returns to neutral.

2. Gear Extension ONLY with CO₂

USE ONLY IF THE ENGINE DRIVEN OR HAND HYDRAULIC PUMP FAILS TO EXTEND THE LANDING GEAR

In case the engine driven or emergency hand hydraulic pumps fail to lower the landing gear the emergency CO₂ system should be used as follows: Place the gear selector handle in the down position, raise firing ring cover under left front seat and pull ring up as far as possible, (approximately 3 inches.)

NOTE

After operating CO₂ system the landing gear (or flap) should not be operated and the selector handles should not be moved until repairs to the system are made. See operators handbook for repair procedure.

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MODEL PA-23-250

<u>Revision Number</u>	<u>Page Number</u>	<u>Description</u>	<u>Date</u>
None Recorded	6-2	Weight and Balance	10/6/59
	7-2	Weight and Balance	10/16/59
	3-1	Emergency Procedures	12/11/59
	1-1	Emergency Procedures	3/21/60
	5-2 to 9-2	Weight and Balance	8/2/60
	9-2	Weight and Balance	11/11/60
	9-2	Weight and Balance	12/29/60
	8-2	Weight and Balance	2/23/61
	7-2	Weight and Balance	3/10/61
	2-2 to 4-2	Weight and Balance	6/2/61
	16-1 to 18-1	Altimatec AKO81 Autopilot	3/22/61
	18-1	Altimatec AKO81 Autopilot	3/28/61
A	4-1	Minimum Feathering RPM	2/15/79

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FEATHERING PROCEDURE (CONT'D.)

2. Inoperative Engine

- a. Throttle "CLOSED"
- b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
- c. Mixture control "IDLE CUT-OFF"
- d. Ignition switches "OFF"
- e. Electric fuel pump "OFF".
- f. Main valve "OFF".

UNFEATHERING PROCEDURE

1. Inoperative Engine

- a. Turn main fuel valve "ON"
- b. Advance propeller control to low pitch position.
- c. Rotate engine with starter until it will windmill by itself.
- d. Retard propeller pitch control to cruise position.
- e. Turn ignition switches "ON".
- f. Advance mixture control to full rich.
- g. Allow engine to idle at 1000 to 1500 RPM with carburetor heat "ON" until oil temperature begins to rise.
- h. Resynchronize engines.

GEAR AND FLAP EXTENSION - EMERGENCY

1. Gear and Flap Extension with Hydraulic Hand Pump

In case of hydraulic pump failure, landing gear and flap extension may be accomplished through the use of the emergency hand pump by placing the pertinent selector handle in the down position and operating the manual pump as follows: Pull emergency pump handle out as far as possible. Pump handle up and down until pressure is built up in system and selector handle automatically returns to neutral.

2. Gear Extension ONLY with CO₂

USE ONLY IF THE ENGINE DRIVEN AND HAND HYDRAULIC PUMPS FAIL TO EXTEND THE LANDING GEAR.

In case the engine driven or emergency hand hydraulic pumps fail to lower the landing gear the emergency CO₂ system should be used as follows: Place the gear selector handle in the down position, raise firing ring cover under left front seat and pull ring up as far as possible (approximately 3 inches).

NOTE

After operating CO₂ system the landing gear (or flap) should not be operated and the selector handles should not be moved until repairs to the system are made. See Service Manual for repair procedure.

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MODEL.....PA-23"160"

LOG OF REVISIONS (CONT'D.)

Rev. No.	Page Number	F.A.A. Approved	Date of Revision	Remarks
7	26a	2/15/79	2/15/79	Emergency Procedures-Feathering

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MODEL PA-23"160"

EMERGENCY PROCEDURES

FEATHERING

A propeller cannot be feathered if the engine has stopped rotating. Feathering must be carried out above 700 revolutions per minute.

Although sufficient rpm for feathering should be available at lower airspeed a minimum of 90 mph IAS should be maintained to avoid high rudder forces and possible airframe buffet following feathering.

FEATHERING PROCEDURE

- | | |
|------------------------|--------------|
| (1) Throttle | Closed |
| (2) Propeller Control | Feathered |
| (3) Mixture Control | Idle Cut-Off |
| (4) Ignition Switch | Off |
| (5) Electric Fuel Pump | Off |
| (6) Main Fuel Cock | Off |

Note: Windmill rpm may be increased approximately 100-300 rpm by opening the throttle prior to feathering.

Improved single engine climb performance will be obtained by holding the wing of the inoperative engine 5 degrees above level to counteract the tendency to turn in that direction. The speed for maximum rate of climb with one engine inoperative is 95 mph IAS, reduced by approximately 1 mph for each 3000 feet of altitude above sea level.

UNFEATHERING

- | | |
|-----------------------|--------------------------------------|
| (1) Main Fuel Cock | On |
| (2) Propeller Control | Low Pitch Position |
| (3) Engine Starter | Engage Until Windmilling Takes Place |
| (4) Propeller Control | Set to Cruise Position |
| (5) Ignition Switch | On |
| (6) Mixture Control | Full Rich |

The engine should be allowed to idle at 1,000 to 1,500 revolutions per minute with the carburetor heat ON until the oil temperature rises to a minimum of 15° Centigrade.

UNDERCARRIAGE AND FLAP OPERATION

In the event of hydraulic pump failure, undercarriage and flap extension can be accomplished by using the emergency hydraulic hand pump. The appropriate selector should be set to DOWN and the hand pump operated until pressure is built-up; the selector will then return automatically to neutral.

Should it not be possible to lower the undercarriage hydraulically, lowering can be achieved by using the CO₂ emergency system. Select DOWN, then pull up the Emergency Gear Extender, positioned beneath a small cover plate under the pilot's seat. Total travel approximately 3". After using the CO₂ system the undercarriage must not be operated until the system has been rectified.

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MODEL PA-23

Doc. No.

Con. No.

GENERAL* AMENDMENT RECORD SHEET

Amendment Number	Title of Amendment	Date	Pages Affected
1	Minimum RPM for Feathering	2/15/79	37

*NOTE: See page 4 for explanation of 'General' Amendments. This amendment record sheet will be re-issued with each 'General' Amendment. Any item amended may itself be changed by a subsequent 'Particular' Amendment (See page 6)

Signature _____

Date _____

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Con. No.

MANDATORY AND EMERGENCY OPERATING PROCEDURES (Continued)

FEATHERING (Continued)

Before feathering, increase the power of the operative engine in order to maintain the minimum controllable single engine speed of 74.8 knots (86 m.p.h.).

NOTE: A propeller cannot be feathered if the engine has stopped rotating. Feathering must be carried out above 700 revolutions per minutes.

FEATHERING PROCEDURE

(1)	Throttle	...	...	CLOSED
(2)	Propeller control	...	...	FEATHER
(3)	Mixture control	...	...	IDLE CUT OFF
(4)	Ignition switch	...	...	OFF
(5)	Electric fuel pump	...	...	OFF
(6)	Main fuel valve	...	...	OFF

UNFEATHERING

(1)	Main fuel valve	...	...	ON
(2)	Propeller control	...	...	LOW PITCH POSITION
(3)	Engine starter	...	...	ENGAGE UNTIL WIND-MILLING TAKES PLACE
(4)	Propeller control	...	...	SET TO CRUISE POSITION
(5)	Ignition switch	...	...	ON
(6)	Mixture control	...	...	FULL RICH

The engine should be allowed to idle at 1,000 to 1,500 revolutions per minute with the carburetor heat ON until the oil temperature rises to a minimum of 15° Centigrade.

ALIGHTING GEAR AND FLAPS

In the event of hydraulic pump failure, landing gear and flap extension can be accomplished by using the emergency hydraulic hand pump. The appropriate selector should be set to DOWN and the hand pump operated until pressure is built up; the selector will then return automatically to neutral.

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MODEL.....PA-23-250

F.A.A. Amendment Record Sheet

Amendment Number	Title of Amendment	FAA/DOA	Date	Pages Affected
8	Correction of Stall Speed Data		10/28/75	26
9	Maximum Weight with Zero Fuel		2/18/77	20,22
10	Emergency Procedures-Feathering		2/15/79	29

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EMERGENCY PROCEDURES

FEATHERING

A propeller cannot be feathered if the engine has stopped rotating. Feathering must be carried out above 700 revolutions per minute.

FEATHERING PROCEDURE

- | | |
|------------------------|--------------|
| (1) Throttle | CLOSED |
| (2) Propeller Control | FEATHER |
| (3) Mixture Control | IDLE CUT-OFF |
| (4) Ignition Switch | OFF |
| (5) Electric Fuel Pump | OFF |
| (6) Main Fuel Cock | OFF |

Note: Windmill RPM may be increased by approximately 100-300 RPM by opening the throttle on the inoperative engine prior to feathering.

Improved single engine climb performance will be obtained by holding the wing of the inoperative engine 5 degrees above level to counteract the tendency to turn in that direction. The speed for maximum rate of climb with one engine inoperative is 105 MPH IAS, reduced by approximately 1/2 MPH for each 1000 feet of altitude.

UNFEATHERING

- | | |
|-----------------------|--------------------------------------|
| (1) Main Fuel Cock | ON |
| (2) Propeller Control | LOW PITCH POSITION |
| (3) Engine Starter | ENGAGE UNTIL WINDMILLING TAKES PLACE |
| (4) Propeller Control | SET TO CRUISE POSITION |
| (5) Ignitions Switch | ON |
| (6) Mixture Control | FULL RICH |

The engine should be allowed to idle at 1,000 to 1,500 revolutions per minute with the carburetor heat ON until the oil temperature rises to a minimum of 15° Centigrade.

UNDERCARRIAGE AND FLAP OPERATION

In the event of hydraulic pump failure, undercarriage and flap extension can be accomplished by using the emergency hydraulic hand pump. The appropriate selection should be set to DOWN and the hand pump operated until pressure is built up; the selector will then return automatically to neutral.

Should it not be possible to lower the undercarriage hydraulically, lowering can be achieved by using the CO₂ emergency system. Select DOWN, plate under the pilot's seat. Total travel approximately 3". After using the CO₂ system the undercarriage must not be operated until the system has been rectified.

ENGINE FIRE DRILL

In the event of an engine fire the following drill must be carried out:

- | | |
|--------------------|--------------|
| Propeller | FEATHER |
| Throttle | CLOSE |
| Ignition Switch | OFF |
| Fuel Cock | OFF |
| Mixture Control | IDLE CUT-OFF |
| Electric Fuel Pump | OFF |

There is no engine fire extinguisher system.

A hand fire extinguisher is provided in the cabin.

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PA-23-250

MODEL (Six-Place)

LOG OF REVISIONS

<u>Rev.</u>	<u>Page/Section</u>	<u>Change</u>	<u>Date</u>
None	2-2	Weight & Balance	2/15/62
Recorded	16-2,17-2	Weight & Balance	4/3/62
	12-2	Weight & Balance	6/28/62
	15-2, 17-2	Weight & Balance	8/6/62
	13-2	Weight & Balance	8/14/62
	17-2	Weight & Balance	10/1/62
	13-2,14-2,15-2	Weight & Balance	2/1/63
	17-2,13-2	Weight & Balance	2/5/63
	17-2	Weight & Balance	2/26/63
	13-2,15-2,14-2	Weight & Balance	6/28/63
	12-2, 17-2	Weight & Balance	10/23/63
	2-1	Limitations	1/24/64
	16-2	Weight & Balance	1/12/65
	15-2, 16-2	Weight & Balance	4/30/65
	2-1	Limitations	11/18/71
	1-1	Limitations	11/15/72
	28-1	Lycoming IO-540-C1B5 Fuel Injection Engines	11/15/72
	28-1	Lycoming IO-540-C1B5 Fuel Injection Engines	3/11/75
A	29-1	Added Fuel System Emergency Procedures Section	11/12/76
B	4-1	Minimum RPM for Feathering	2/15/79

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 1204
PAGE 4, Sec. 1
PA-23-250
MODEL 6-Place

FEATHERING PROCEDURE

1. Operating Engine

- a. Throttle "OPEN" to maintain altitude and airspeed.
MINIMUM CONTROLLABLE SINGLE ENGINE SPEED 80 MPH TIAS

2. Inoperative Engine

- a. Throttle "CLOSED"
- b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
- c. Mixture control "IDLE CUT-OFF"
- d. Ignition switches "OFF"
- e. Electric fuel pump "OFF"
- f. Main valve "OFF"

UNFEATHERING PROCEDURE

1. Inoperative Engine

- a. Turn main fuel valve "ON"
- b. Advance propeller control to low pitch position.
- c. Rotate engine with starter until it will windmill by itself.
- d. Retard propeller pitch control to cruise position.
- e. Turn ignition switches "ON".
- f. Advance mixture control to full rich.
- g. Allow engine to idle at 1000 to 1500 RPM with carburetor heat "ON" until oil temperature begins to rise.
- h. Resynchronize engines.

GEAR AND FLAP EXTENSION - EMERGENCY

1. Gear and Flap Extension with Hydraulic Hand Pump

In case of hydraulic pump failure, landing gear and flap extension may be accomplished through the use of the emergency hand pump by placing the pertinent selector handle in the down position and operating the manual pump as follows: Pull emergency pump handle out as far as possible. Pump handle up and down until pressure is built up in system and selector handle automatically returns to neutral.

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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REPORT.....
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PAGE.....
MODEL..... PA-23-235

<u>Revision Number</u>	<u>Page Number</u>	<u>Description</u>	<u>Date</u>
None Recorded	1-4	Limitations	6/28/62
	4-4 to 6-4	Weight & Balance	8/8/62
	2-4	Weight & Balance	8/14/62
	1-4 to 6-4	Weight & Balance	8/29/62
	5-4 to 6-4	Weight & Balance	12/14/62
	3-4, 4-4	Weight & Balance	1/24/63
	2-4, 5-4, 6-4	Weight & Balance	2/5/63
	6-4	Weight & Balance	2/26/63
	6-4	Weight & Balance	10/23/63
	2-1	Limitations	1/24/64
	4-4	Weight & Balance	1/7/65
	4-4, 5-4	Weight & Balance	3/9/65
	4-4	Weight & Balance	6/22/65
	2-4	Weight & Balance	7/12/65
	5-4	Weight & Balance	1/6/66
	4-4, 5-4	Weight & Balance	1/20/66
	6-4	Weight & Balance	3/23/66
A	4-1	Minimum Feathering RPM	2/15/79

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MODEL PA-23-235

FEATHERING PROCEDURE. (CONT'D.)

2. Inoperative Engine

- a. Throttle "CLOSED"
- b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
- c. Mixture control "IDLE CUT-OFF."
- d. Ignition switches "OFF"
- e. Electric fuel pump "OFF".
- f. Main valve "OFF".

UNFEATHERING PROCEDURE

1. Inoperative Engine

- a. Turn main fuel valve "ON"
- b. Advance propeller control to low pitch position.
- c. Rotate engine with starter until it will windmill by itself.
- d. Retard propeller pitch control to cruise position.
- e. Turn ignition switches "ON".
- f. Advance mixture control to full rich.
- g. Allow engine to idle at 1000 to 1500 RPM with carburetor heat "ON" until oil temperature begins to rise.
- h. Resynchronize engines.

GEAR AND FLAP EXTENSION - EMERGENCY

1. Gear and Flap Extension with Hydraulic Hand Pump

In case of hydraulic pump failure, landing gear and flap extension may be accomplished through the use of the emergency hand pump by placing the pertinent selector handle in the down position and operating the manual pump as follows: Pull emergency pump handle out as far as possible. Pump handle up and down until pressure is built up in system and selector handle automatically returns to neutral.

2. Gear Extension ONLY with CO₂ USE ONLY IF THE ENGINE DRIVEN AND HAND HYDRAULIC PUMPS FAIL TO EXTEND THE LANDING GEAR.

In case the engine driven or emergency hand hydraulic pumps fail to lower the landing gear the emergency CO₂ system should be used as follows: Place the gear selector handle in the down position, raise firing ring cover under left front seat and pull ring up as far as possible (approximately 3 inches).

PREPARED.....
CHECKED.....
APPROVED.....