

SERVICE BULLETIN

STARTING — PNEUMATIC STARTER — INTRODUCTION OF A NEW STARTER
WITH THE REMOVAL OF THE OIL SIGHT GLASS

MODEL APPLICATION

V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5

BULLETIN ISSUE SEQUENCE

V2500 Series 80-0025

ATA NUMBER

80-13-41

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EAR Export Classification: ECCN 9E991.

Supplier Service Bulletin

Sumitomo Precision Products Service Bulletin 80-2522.

Compliance Category

8

September 16/13

V2500-ENG-80-0025

Summary

The purpose of this Service Bulletin is to introduce a new pneumatic starter which no longer contains an oil level sight glass. The sight glass feature becomes cloudy and ineffective over time.

Planning Information

Effectivity Data

Engine Models Applicable

V2500-A1

Engine Serial Nos. V0001 thru V0361

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5

Engine Serial Nos. V10001 thru V13190

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5

Engine Serial Nos. V15001 thru V17009

Concurrent Requirements

This Service Bulletin must be done at the same time or after Reference 18 Service Bulletin No. V2500-ENG-80-0024.

Reason

1. Condition: The sight glass plug becomes cloudy and it is difficult to determine oil level.
2. Background: The sight glass plug has a reflective backing that becomes dirty and difficult to see over time.
3. Objective: Replace sight glass plug (PN 738277-3) with a single blanking plug.
4. Substantiation: The changes introduced by this Service Bulletin were the subject of satisfactory engineering analysis and test. This Service Bulletin complies with the applicable engine certification basis.
5. Effects of Bulletin on:
 - Removal/Installation: Not affected.
 - Disassembly/Assembly: Not affected.
 - Cleaning: Not affected.
 - Inspection/Check: Not affected.
 - Repair: Not affected.
 - Testing: Not affected.
6. Supplemental Information
 - None.

Description

Install a new pneumatic starter with a single blanking plug replacing the oil level sight glass or send the starter to a shop capable of accomplishing the attached Service Bulletin, Reference 19 Sumitomo Precision Products Service Bulletin 80-2522 to replace the oil sight plug.

Compliance

Category 8

Accomplish based upon experience with the prior configuration.

Approval Data

The part number changes and/or part modifications specified in the Accomplishment Instructions and Material Information sections of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model(s) given.

Manpower

1. In Service: Not Applicable.
2. At Overhaul: Not Applicable.

Weight and Balance

1. Weight Change

None.

NOTE: The weight shown in the attached Vendor Service Bulletin is below the limit which requires reporting in IAE Service Bulletins.

2. Moment Arm

No Effect.

3. Datum

Engine Front Mount Centerline (Power Plant Station (PPS) 100)

Electrical Load Data

This Service Bulletin has no effect on the aircraft electrical load.

Software Accomplishment Summary

Not Applicable.

References

1. ATA Locator — 80-13-41.
2. Internal Reference No. — 13VI006.
3. V2500 Standard Practices/Processes Manual (E-V2500-1IA), Chapter/Section 71-00-02-000-017
4. V2500 Engine Illustrated Parts Catalog (S-V2500-1IA), Chapter/Section 80-13-41.
5. V2500 Engine Illustrated Parts Catalogs (S-V2500-2IA, S-V2500-2IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, S-V2500-7IB), Chapter/Section 80-13-41.
6. V2500 Engine Illustrated Parts Catalogs (S-V2500-2SA, S-V2500-2SB, S-V2500-2NA, S-V2500-2NB, S-V2500-5SA, S-V2500-5SB, S-V2500-5NA, S-V2500-5NB, S-V2500-6SA, S-V2500-6SB, S-V2500-6NA, S-V2500-6NB, S-V2500-7SA, S-V2500-7SB, S-V2500-7NA, S-V2500-7NB), Chapter/Section 80-13-41.

7. V2500 Component Maintenance Manual (E-V2500-1IA), Chapter/Section 80-13-41
8. V2500 Engine Manual (E-V2500-1IA), Chapter/Section 71-00-02-000-017.
9. IAE V2500 Service Bulletin V2500-ENG-70-0395 (Information — Starting — To Announce The Introduction Of A New Pneumatic Starter With An Oil Pressure Fill Facility).
10. IAE V2500 Service Bulletin V2500-ENG-80-0007 (Starting — Pneumatic Starter — Introduction Of A Revised Pneumatic Starter With A Revised Carbon Seal Retention).
11. IAE V2500 Service Bulletin V2500-ENG-80-0008 (Starting — Pneumatic Starter — Introduction Of A Synchronous Engagement Clutch).
12. IAE V2500 Service Bulletin V2500-ENG-80-0013 (Starting — Pneumatic Starter — Introduction Of A Revised Pneumatic Starter With A Revised Carbon Seal Retention).
13. IAE V2500 Service Bulletin V2500-ENG-80-0014 (Starting — Pneumatic Starter — Introduction Of A Revised Starter With Modified Turbine Retention Nut Rework Of The Pinion Gear).
14. IAE V2500 Service Bulletin V2500-ENG-80-0015 (Starting — Pneumatic Starter — Introduction Of A Revised Pneumatic Starter With A Modified Synchronous Engagement Clutch Assembly).
15. IAE V2500 Service Bulletin V2500-ENG-80-0016 (Starting — Pneumatic Starter — Introduction Of A Revised Starter With Modified Planet Gear Setscrew Retention).
16. IAE V2500 Service Bulletin V2500-ENG-80-0019 (Starting — Pneumatic Starter — Introduction Of A Pneumatic Starter With Revised Dynamic 'O'-Ring Seals).
17. IAE V2500 Service Bulletin V2500-ENG-80-0020 (Starting — Pneumatic Starter — Introduction Of A Pneumatic Starter With A Vented Inlet Housing).
18. IAE V2500 Service Bulletin V2500-ENG-80-0024 (Starting — Pneumatic Starter — Introduction Of A Revised Pneumatic Starter With An Improved Magnetic Seal And New Gear Cage Steel Sleeves).
19. Sumitomo Precision Products Service Bulletin 80-2522

Other Publications Affected

1. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-7IB), Chapter/Section 80-13-41.

Interchangeability of Parts

Old and new parts are directly interchangeable.

This Service Bulletin must be done at the same time or after Reference 18 Service Bulletin No. V2500-ENG-80-0024.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

Material Information

Material — Price and Availability

1. Refer to the attached Reference 19 Vendor Service Bulletin for the cost of new materials to accomplish this Service Bulletin.
2. There is no kit provided to do this Service Bulletin.
3. Part availability information is provided in material data Instructions — Disposition.

Industry Support Program

Not Applicable.

The material data that follows is for each engine.

For V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5 Engines:

New PN	Qty	Estimate of Unit Price (\$)	Keyword	Old PN	Instructions — Disposition
790425A9	1	*	STARTER, PNEUMATIC	790425A6 (80-13-41-01-200)	(3)(P)(S1)(V)
			OR		
790425A9	1	*	STARTER, PNEUMATIC	790425A8 (80-13-41-01-200)	(3)(P)(S1)(V)

Instructions/Disposition Code Statements:

Parts Modification Conditions

Estimated part prices are provided when they are available at time of publication. The Estimate of Unit Price is only for planning purposes and does not constitute a firm quotation. An asterisk (*) is shown where part pricing information was unavailable.

(3) See Reference 19 Sumitomo Precision Products Service Bulletin 80-2522 for new part information.

Spare Parts Availability

(P) Procure the part directly from the Supplier referenced in Vendor Services or Special Components.

(S1) Old and new parts are fully and freely interchangeable.

(V) This is the Sumitomo Precision Products part number, contact them for new part availability.

Vendor Services or Special Components/Materials

See Reference 19 for Vendor Contact information.

Tooling — Price and Availability

Special tools are not required to accomplish this Service Bulletin.

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

Accomplishment Instructions

1. Do the attached Vendor Service Bulletin to improve the Pneumatic Starter.
 - A. Do Reference 19 Sumitomo Precision Products (SPP) Service Bulletin 80-2522 to replace the Oil Sight Glass, PN 738277-3 with a single blanking Plug and Bleeder, PN AN814-12DL, or PN AS5169D12L, or PN AS5169W12L. The oil sight glass becomes ineffective over time in the Pneumatic Starter and is not needed with the "Fill to Spill" method of checking oil level.
2. Recording Instructions
 - A. A record of accomplishment is required.

Appendix

Parts Progression To Show the Changed Part in Relation to Other Parts

V2500-ENG-80-0007 - A1 ENGINES ONLY
INTRODUCTION OF A NEW STARTER
TRANSMISSION HOUSING TO
INCREASE OIL LEVELS

Unit Mod
Plate Endorsement
L11

V2500-ENG-80-0008 - A1 AND A5 ENGINES
INTRODUCTION OF A SYNCHRONOUS
ENGAGEMENT CLUTCH

NONE

V2500-ENG-70-0395 - A1 AND A5 ENGINES
INFORMATION - STARTING - TO ANNOUNCE
THE INTRODUCTION OF A NEW PNEUMATIC
STARTER WITH AN OIL PRESSURE
FILL FACILITY

NONE

V2500-ENG-80-0013 - ALL ENGINES
INTRODUCTION OF A REVISED
PNEUMATIC STARTER WITH A
REVISED CARBON SEAL RETENTION

L12

V2500-ENG-80-0014 - ALL ENGINES
INTRODUCTION OF A REVISED STARTER
WITH MODIFIED TURBINE RETENTION NUT
REWORK OF THE PINION GEAR

L13

V2500-ENG-80-0015 - ALL ENGINES
INTRODUCTION OF A REVISED PNEUMATIC
STARTER WITH A MODIFIED SYNCHRONOUS
ENGAGEMENT CLUTCH ASSEMBLY

NONE

V2500-ENG-80-0016 - ALL ENGINES
INTRODUCTION OF A REVISED PNEUMATIC
STARTER WITH A MODIFIED PLANET
GEAR SETSCREW RETENTION

L14

V2500-ENG-80-0019 - ALL ENGINES
INTRODUCTION OF A PNEUMATIC STARTER
WITH REVISED DYNAMIC 'O'-RING SEALS

L15

V2500-ENG-80-0020 - ALL ENGINES
INTRODUCTION OF A REVISED PNEUMATIC
STARTER WITH A VENTED INLET HOUSING

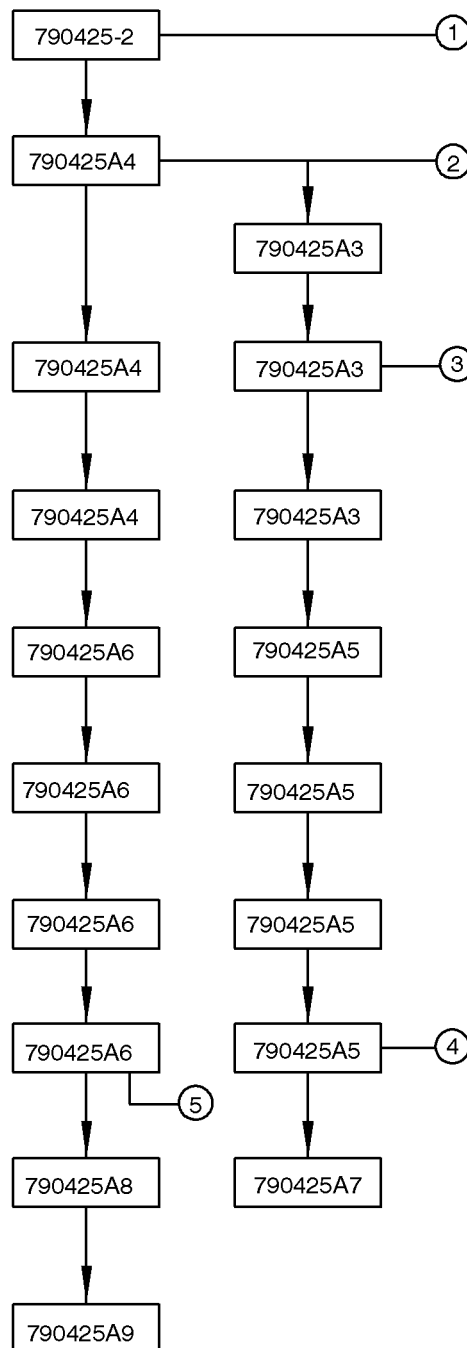
L16

V2500-ENG-80-0024 - ALL ENGINES
INTRODUCTION OF A REVISED PNEUMATIC
STARTER WITH AN IMPROVED MAGNETIC
SEAL AND NEW GEAR CAGE STEEL SLEEVES

L17**

V2500-ENG-80-0025 - A1 AND A5 ONLY
INTRODUCTION OF A NEW STARTER
WITH THE REMOVAL OF THE OIL SIGHT
GLASS WHICH BECOMES INEFFECTIVE
OVER TIME

L17**



** THE L NUMBER ONLY ADVANCES TO L17 WHEN SPP SB 80-2520 IS ACCOMPLISHED
PART NUMBER ADVANCES WHEN SPP SB 80-2521 IS ACCOMPLISHED

FAMILY TREE — V2500-A1, A5 AND D5 PNEUMATIC STARTER CHART A, SHEET 1

September 16/13

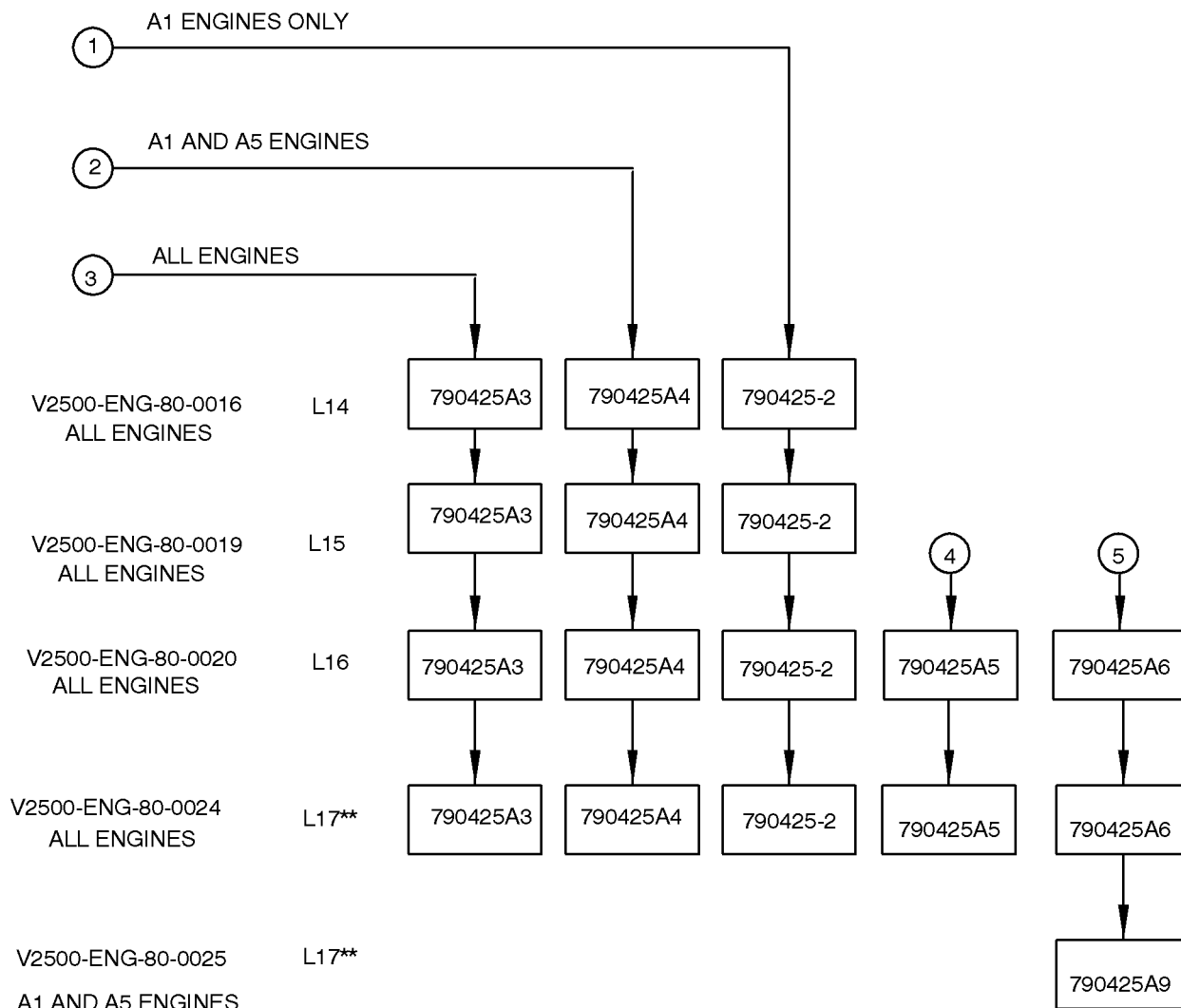
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** THE L NUMBER ONLY ADVANCES TO L17 WHEN SPP SB 80-2520 IS ACCOMPLISHED
PART NUMBER IS CHANGED WHEN SPP SB 80-2521 IS ACCOMPLISHED

FAMILY TREE — V2500-A1 AND V2500-A5 PNEUMATIC STARTER
CHART A, SHEET 2

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EC13VI006	PT/CMS

Number values shown in parentheses adjacent to U.S. values are International System of units (SI) equivalents.

Reference 19 Sumitomo Precision Products Service Bulletin 80-2522 follows:



SERVICE BULLETIN

STARTING - PNEUMATIC STARTER - SIGHT PLUG REMOVAL

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INFORMATION SUBJECT TO EXPORT CONTROL LAWS

Subject to the EAR, ECCN 9E991

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1. PLANNING INFORMATION

A. Effectivity

- (1) Sumitomo Precision Products Pneumatic Starter, Model PS400-1, part number 790425A8 and 790425-8, all serial numbers, used on Airbus A319, A320, A321 aircraft that use IAE V2500 engines.

B. Concurrent Requirements

- (1) Service Bulletin 80-2521 must be accomplished before you perform Service Bulletin 80-2522.

C. Reason

- (1) Problem - The Pneumatic Starter incorporates a sight plug for indicating oil level. The sight plug sometimes becomes cloudy and it is difficult to determine the oil level.
- (2) Cause - The sight plug is in a harsh, oily environment. The sight plug has a reflective backing and it becomes dirty and difficult to see over time.
- (3) Solution - Replacing sight plug PN 738277-3 with plug and bleeder PN AN814-12DL, or PN AS5169D12L, or PN AS5169W12L.
- (4) Substantiation - The Pneumatic Starter has an oil fill-to-overflow feature to ensure the proper oil level. The sight plug has been removed from several other pneumatic starters for over 20 years. Many airlines have experience operating pneumatic starters without the sight plug without adverse affects.

The AS5169 fittings are acceptable alternates for the AN814 fittings. They are functionally equivalent and acceptable as replacements per their governing standards.

D. Description

- (1) This bulletin gives the instructions to remove the existing sight plug, install a new plug and bleeder, test the Pneumatic Starter, and re-identify the Pneumatic Starter.

E. Compliance

- (1) Incorporation of this service bulletin is to be accomplished if the operator thinks the change is necessary because of what the operator knows of the history of the unit.



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F. Approval

- (1) This Service Bulletin 80-2522 (IAE SB 80-0025) was technically agreed by IAE on 25 July 2013.

G. Manpower

- (1) Approximately 0 man-hours are required to replace the sight plug, test the Pneumatic Starter, and identify the Pneumatic Starter during normal overhaul or repair.

H. Weight and Balance

- (1) Incorporation of this service bulletin increases the weight of the Pneumatic Starter by 0.029 pound (0.01 kilogram).

I. Electrical Load Data

- (1) Not changed

J. Software Accomplishment Summary

- (1) Not Applicable

K. References

- (1) Component Maintenance Manual (CMM) 80-13-41
- (2) Engineering Change 13B428
- (3) IAE Engineering Change 13VI006

L. Other Publications Affected

- (1) Component Maintenance Manual 80-13-41 will be revised to incorporate this bulletin.

M. Interchangeability or Intermixability of Parts

- (1) The incorporation of this bulletin does not affect the interchangeability or intermixability of the Pneumatic Starter.



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2. MATERIAL INFORMATION

A. Material - Price and Availability

- (1) The prices that are shown in Table 1 are an estimate for one part in US dollars. When you buy the parts, the prices may be different. Send requests for parts to:

Mail:

Sumitomo Precision Products Co.
Attention: Product Support Department
1-10, Fuso-cho, Amagasaki
Hyogo 660-0891 Japan

Telephone: +81-6-6489-5884
FAX: +81-6-6489-5889

B. Industry Support Information

- (1) All costs associated with the incorporation of this bulletin are at the operator's expense.

C. Material Necessary For Each Unit

- (1) Refer to CMM 80-13-41 for expendable parts information.
(2) Material to be Purchased

Table 1
New Parts Required

New Part Number	Keyword	Old Part Number	Qty	Unit Price (Note 1)	Special Instructions/Disposition
None	Plug, Sight	738277-3	1	US \$ 145.40	Remove and discard old.
AN814-12DL	Plug and Bleeder	None	1	US \$ 32.00	Install.
AS5169D12L	Plug and Bleeder	None	1	US \$ 32.00	(Note 2)
AS5169W12L	Plug and Bleeder	None	1	US \$ 32.00	(Note 2)

Table 1 Note 1: The noted price is valid at the time of the original bulletin issue. Refer to the latest catalog for the current price.

Table 1 Note 2: Noted parts are alternates for plug and bleeder PN AN814-12DL.



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(3) Material Supplied by the Operator

(a) None

D. Material Necessary For Each Spare

(1) The same as the material necessary for each unit.

E. Reidentified Parts

(1) The Pneumatic Starter part number is changed as listed in Table 2 (refer to paragraph 3.F.(1) of this bulletin).

Table 2
Reidentified Parts

New Part Number	Keyword	Old Part Number
790425-9	Pneumatic Starter	790425-8
790425A9	Pneumatic Starter	790425A8

F. Tooling - Price and Availability

(1) No tooling other than that required for shop maintenance of the Pneumatic Starter is required to do this modification.

3. ACCOMPLISHMENT INSTRUCTIONS

A. General

- (1) The facility performing the work (user) should obtain the material safety data sheets [Occupational Safety and Health Act (OSHA) Form 20 or equivalent] from the manufacturers or suppliers of materials to be used. The user must become completely familiar with the manufacturer/supplier information and adhere to the procedures, recommendations, warnings, and cautions of the manufacturer/supplier for the safe use, handling, storage, and disposal of these materials. The user should also read the long version of the warnings contained in this bulletin. The long version warnings are contained in Hamilton Sundstrand Warnings Registry 341-006 available free of charge to all organizations that are on distribution for this bulletin. The Warnings Registry 341-006 is also available at myhs.hamiltonsundstrand.com.
- (2) A unit modified according to this service bulletin might be returned to the shop for maintenance or repair before the new or modified part numbers or procedures in this bulletin are incorporated into the applicable CMM.

Until this service bulletin is incorporated into the CMM, operators are allowed to disassemble, clean, check, repair, assemble, and test the unit according to the applicable CMM, using the new or modified part numbers or procedures in this bulletin.

After this service bulletin is incorporated into the CMM, the CMM procedures will supersede this bulletin.

Subject to the EAR - See the Title, First, or Cover Page for more information.



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B. Disassembly

- (1) Refer to CMM 80-13-41, DISASSEMBLY and the steps that follow to remove the sight plug (450) from the Pneumatic Starter.
 - (a) Remove the sight plug (450, IPL Figure 1, CMM 80-13-41) and preformed packing (460) from the transmission housing (300) according to CMM 80-13-41, DISASSEMBLY.
 - (b) Discard the sight plug (450) and preformed packing (460).

C. Modification

- (1) None

D. Assembly

- (1) Refer to CMM 80-13-41, ASSEMBLY and the steps that follow to assemble the Pneumatic Starter.
 - (a) Lubricate a new preformed packing (460) with MIL-PRF-23699 oil and install it on the new plug and bleeder PN AN814-12DL, or AS5169D12L, or AS5169W12L.
 - (b) Install the new plug and bleeder PN AN814-12DL, or AS5169D12L, or AS5169W12L in the transmission housing (300).
 - (c) Tighten the plug and bleeder to a torque of 45 to 60 pound inches (5.1 to 6.7 Newton meters).
 - (d) Secure the plug and bleeder with lockwire according to CMM 80-13-41, ASSEMBLY.

E. Test

- (1) Do a test of the Pneumatic Starter (refer to CMM 80-13-41, TESTING AND FAULT ISOLATION).

F. Identification

- (1) On the identification plate (430, IPL Figure 1), put a mark through the "dash" number that follows the Pneumatic Starter part number 790425. Use a permanent marking method to add the new Pneumatic Starter "dash" number as detailed in Table 2 of this bulletin.