Beech Aircraft Corporation

OVERHAUL SPECIFICATION

POWER PLANT GROUP - MODEL C-45G AND C-45H

Overhaul Specification 9001

ISSUED May 26, 1953

REVISED October 1, 1954

T. R. Taylor

R. B. Bosworth
Chief Requirements Engineer

For Project Engineer

A. S. Odevseff
Chief Project Engineer - Military

USAF Quality Control

E-371

Beech Aircraft Corporation

OVERHAUL SPECIFICATION 9001

TITLE POWER PLANT GROUP - MODEL C-45H AND C-45H

ISSUED 5-26-53.

WRITTEN BY E. M. Fauquet, Revised by: T. R. Taylor REVISED 10-1-54

1. SCOPE

1.1 Purpose.- The purpose of this specification is to authorize the use of reconditioned parts and provide reconditioning instructions for components of the complete power plant group as installed in T-7, T-7C, UC-45B, C-45F and T-11 aircraft and instructions for modifications necessary to adapt them for installation in C-45G and C-45H aircraft.

1.2 Application.- All reconditioning operations and repairs covered by this specification may be accomplished where required without further authorization. Repairs not authorized by this specification cannot be performed without further authorization.

1.3 List of Pages and Revisions.- This specification consists of the pages listed below. An asterisk (*) denotes pages revised by the current revision.

Page	Date	Description of Revision	Serial Effectivity
*1	10-1-54	Record Revision	
2	5-26-53		Record Change
3	5-26-53		
4	5-26-53		
5	5-26-53		
6	5-26-53		
	8-9-54	Add J 2-5-24D-4-1/8 P.T., and 20820-1 to Paragraph 3.3.1.3.1	Record Change
9	5-26-53		
	5-26-53		
10	5-26-53		
11	5-26-53		
12	8-9-54	Add J 2-5-24D-4-1/8 P.T. and 20820-1 to Paragraph 3.3.1.3.1 heading	Record Change
13	5-26-53		
14	8-9-54	Add Figure 2	
15	10-1-54	Authorize substitution of 15880 Stator Assembly	Record Change Record Change

2. APPLICABLE PUBLICATIONS

2.1 Federal.-

QQ-P-416	Cadmium Plating

2.2 Beech.-

FS 370A	Finish Specifications - Model C-45G and C-45H Aircraft
MP 1111	Acidizing
OS 5710	Fire Extinguisher System - Model C-45G Aircraft
OS 7002	Cleaning Procedures for Reconditioned Aircraft
OS 7003	Airframe and Control Anti-friction Bearings
OS 7008	General Acceptable Quality Standards
OS 7010	Removing Corrosion from Aluminum Parts
OS 9101	Power Plant Installation - Model C-45G and C-45H Aircraft
OS 9201	Fuel System - Model C-45G and C-45H Aircraft
OS 9301	Oil System - Model C-45G and C-45H Aircraft
OS 9401	Engine and Pedestal Control Systems - Model C-45G and C-45H Aircraft

2.3 Technical Orders.- Compliance with this specification constitutes compliance with the technical orders listed below.

03-35A-5	Fluid Metering Pump Series "J" (ADEL), dated November 1, 1947

3. REQUIREMENTS

3.1 Parts Involved.- For parts involved in addition to those covered by this specification refer to the overhaul specifications listed below.

OS 5710	Fire Extinguisher System - Model C-45G Aircraft
OS 9101	Power Plant Installation - Model C-45G and C-45H Aircraft

3.1 Parts Involved.- (Continued)

OS 9201 Fuel System - Model C-45G and C-45H Aircraft

OS 9301 Oil System - Model C-45G and C-45H Aircraft

OS 9401 Engine and Pedestal Control Systems - Model C-45G and C-45H Aircraft

OS 9711 Vacuum System - Model C-45G and C-45H Aircraft

3.1.1 Parts Not Used:

3.1.1.1 Anti-icer Piping Installations 189655, 84-189655 and 84-189680.- All parts called out on Drawings 189655, 84-189655 and 84-189680 anti-icer piping installation will be disposed of at the direction of the customer except those parts listed in Paragraph 3.1.2.1 of this specification.

3.1.1.2 Piping Supports Installations 804-189697 and 84-189697.- None of the parts called out on Drawings 804-189697 and 84-189697 piping supports installations will be re-used on the Model C-45G or C-45H. They will be disposed of at the direction of the customer.

3.1.1.3 Instrument Piping Installations 804-189690, 84-189690, and 824-189690.- All of the parts called out on Drawings 804-189690, 84-189690 and 824-189690 will be disposed of at the direction of the customer except those parts listed in Paragraph 3.1.2 of this specification.

3.1.1.4 Fuselage Vacuum System Installations 84-189695, 824-189695, 804-189695, 804-189680 and 884-189680.- None of the parts called out on Drawings 84-189695, 824-189695, 804-189695, 804-189680 and 884-189680 fuselage vacuum system installations will be re-used on the C-45G or C-45H aircraft. They will be disposed of at the direction of the customer.

3.1.1.5 Vacuum System Vent Installation 814-189790.- None of the parts called out on Drawing 814-189790 vacuum system vent installation will be re-used on the C-45G or C-45H aircraft. They will be disposed of at the direction of the customer.

3.1.2 Parts to be Reconditioned.- The following parts are to be reconditioned in accordance with the instructions contained herein. "Reconditioned" means the disassembly, cleaning, inspection and correction of discrepancies, repair and/or replacement of components, and modifications to incorporate changes in accordance with applicable engineering drawings to assure an operationally safe and serviceable aircraft.

84-189780	Engine section vacuum system installation
94-189780	Engine section vacuum system installation
814-189780	Engine section vacuum system installation
804-189000	Power plant installation
824-189000	Power plant installation
84-189000	Power plant installation
814-189000	Power plant installation
804-189600	Fuel system installation
84-189600	Fuel system installation
94-189750	Oil system installation
84-189740	Oil system installation
84-189060	Engine control system installation
*84-183180	Fuselage and wing fire extinguisher lines
*804-183180	Fuselage and wing fire extinguisher lines
*189450P	Engine compartment fire extinguisher lines

*Applicable to Model C-45G only.

3.1.2.1 Anti-icer Piping Installation 189655, 84-189655 and 84-189680.-

I189661	Clip
34-189693	Bracket Assembly

3.1.2.1.1 Anti-icer Tank and Pump Installation 84-189646.-

AN6100-1	Pump assembly
I189687	Tank strap
189686	Tank assembly
I189712	Cap assembly

3.1.2.1.1 Anti-icer Tank and Pump Installation 84-189646.- (Continued)

189677	Anti-icer fluid tank gauge
189680	Adapter
*84-189653	Fitting
No. 7979	Filter assembly

* Applicable for use on Model C-45G only.

3.1.2.2 Instrument Piping Installations 804-189690, 84-189690 and 824-189690:

3.1.2.2.1 Centralized Air Filter Installations 804-183890, 824-183890 and 814-183890.-

AN5822-1	Air filter
10 C.F.M.	Specification AN-F-9 - Air filter

3.1.3 Parts to be Supplied New:

3.1.3.1 Anti-icer Piping Installation 694-189655.- All parts called out on Drawing 694-189655 anti-icer piping installation will be supplied new for the Model C-45G except the parts listed in Paragraph 3.1.2.1 and 3.1.2.1.1 of this specification.

3.1.3.2 Hydromatic Propeller Anti-icer Piping Installation 894-189692.- All parts called out on Drawing 894-189692 hydromatic propeller anti-icer piping installation are to be supplied new for the Model C-45H except the parts listed in Paragraph 3.1.2.1 and 3.1.2.1.1 of this specification.

3.1.3.3 Piping Supports Installation 694-189697.- All parts called out on Drawing 694-189697 piping supports installation are to be supplied new.

3.1.3.4 Engine Section Instrument Piping Installation 694-189679.- All parts called out on Drawing 694-189679 engine section instrument piping installation are to be supplied new except the parts listed below which are reconditioned in accordance with OS 9201 Fuel System - Model C-45G and C-45H Aircraft.

Type C-3A Specification 94-32215		Pressure warning unit
1889322P	Block	
189746	Fitting	
189324	Plug	

3.1.3.5 Fuselage Pressure Piping Installation 694-189760.- All parts called out on Drawing 694-189760 fuselage pressure piping installation are to be supplied new.

3.1.3.6 Centralized Air Filter Installation 694-183890.- All parts called out on Drawing 694-183890 centralized air filter installation are to be supplied new for the Model C-45G except the parts listed in Paragraph 3.1.2.2.1 of this specification.

3.1.3.7 Centralized Air Filter Installation 894-183892-1.- All parts called out on Drawing 894-183892-1 centralized air filter installation are to be supplied new for the Model C-45H except the parts listed in Paragraph 3.1.2.2.1 of this specification.

3.1.3.8 Fuselage Fire Extinguisher Installation 694-183190.- All parts called out on Drawing 694-183190 fuselage fire extinguisher installation will be supplied new for the Model C-45H.

3.1.3.9 Engine Compartment Fire Extinguisher Lines Installation 694-183195.- All parts called out on Drawing 694-183195 engine compartment fire extinguisher lines installation will be supplied new for the Model C-45H.

TITLE POWER PLANT GROUP - MODEL C-45G AND C-45H

ISSUED 5-26-53

WRITTEN BY E. M. Fauquet, Revised - T. R. Taylor REVISED 8-9-54

3.3.1.10 Aeroproducts Propeller Installation 694-189020.- All parts called out on Drawing 694-189020 Aeroproducts propeller installation will be supplied new or as furnished by the customer for the Model C-45G.

3.1.3.11 Hydromatic Propeller Installation 694-189010.- All parts called out on Drawing 694-189010 hydromatic propeller installation will be supplied new or as furnished by the customer for the Model C-45H.

3.2 Cause for Rejection.- Damage or wear which cannot be corrected by one or more of the authorized repairs listed in Paragraph 3.4 of this specification will be cause for rejection.

3.3 Reconditioning Operations:

3.3.1 Anti-icer Piping Installation 189655, 84-189655 and 84-189680:

3.3.1.1 Clip I189661.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002.

3.3.1.2 Bracket Assembly 84-189693.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002.

(c) Strip and cadmium plate in accordance with Specification QQ-P-416.

3.3.1.3 Anti-icer Tank and Pump Installation 84-189646:

3.3.1.3.1 Pump Assembly AN6100-1, J 2-5-24D-4-1/8 P.T., and 20820-1.-

(a) Inspect for nonrepairable conditions.

(b) Disassemble except the pumping mechanism stator assembly. Should the stator assembly be inoperative it must be replaced as a complete unit.

3.3.1.3.1 Pump Assembly AN6100-1.- (Continued)

(c) Recondition bearings in accordance with OS 7003.

(d) Clean the armature and motor housing with trichlorethylene. Dipping and stiff brushing is usually sufficient. Do not soak the armature in the solution. Dry with compressed air.

Inspect the armature assembly for condition of shaft, tie string, varnish, commutator, etc. Repair as necessary as authorized herein.

Ground test the armature by connecting one side of a test lamp circuit to the armature core and the other side to the commutator bars. If the test lamp lights, the armature is grounded and must be replaced.

Give the commutator a continuity test from bar to bar using an ammeter and test points. If there is an appreciable difference in ammeter readings and if inspection shows the armature is not shorted across, a high reading would indicate a short circuit and a low reading would indicate an open circuit. The test may also be made by measuring the actual resistance between adjacent commutator segments, a low resistance indicating a shorted circuit and a high resistance indicating an open circuit.

Inspect the field assemblies for condition of leads, varnish, lead clips or terminals.

Ground test the field windings by connecting one side of a test lamp circuit to one field lead and touching the field core with the other side of the lamp circuit. If the lamp lights, the fault should be corrected or the field replaced.

Inspect the motor brushes for general condition and appearance. The minimum serviceable length of brushes is 5/16-inch. Brushes should be replaced when this minimum is reached to assure proper operation until the next inspection or overhaul period. When brushes are removed, wipe them clean with a dry cloth and when replaced, assemble in the same brush holder and in the same relation to the brush holder as before so the brush seat will not be changed.

Replace all wire leads with cracks in insulation and make certain that abrupt bends which might rupture the insulation are avoided.

3.3.1.3.1 Pump Assembly AN6100-1.- (Continued)

Reassemble, making sure that all parts of the pump assembly are absolutely clean and free from foreign matter when installed. Flush out the pump housing thoroughly and assemble all parts of the pumping mechanism while wet with clean alcohol. If the stator assembly has been removed from the pump housing, a new gasket should be installed.

(e) Functional test the unit on a test stand which incorporates equipment as illustrated in Figure 1 of this specification. Fluid used for testing shall be anti-icing fluid conforming to Specification AN-F-13. Connect the pump to the system and allow the pump to prime fully and warm up before conducting the test. Leave all restrictors wide open during warm-up.

Close the two restrictors between the pump and beakers until the pressure gauges register 20 psi.

Close the restrictor in the suction line until the manometer registers three inches of mercury.

Before continuing the test check to see that the pump is operating at the proper voltage and suction lift. (Regulation of one factor may have changed the others.)

Insert the beakers or containers under the outlet port stand pipes and allow the fluid to pour into them for one minute. To secure accurate results, it is imperative that the two beakers be inserted and removed simultaneously, while the pump is running.

Quantities of fluid in the two beakers should be approximately equal. To secure pump capacity figures it will be necessary to convert ounces per minute or cubic inches per minute to gallons per hour by use of the following formula:

Fluid ounces per minute x .47 = gallons per hour.

Cubic inches per minute x .26 = gallons per hour.

The gallonage thus determined should be approximately equal to the rated pump capacity. Allow approximately 25 percent variation in capacity figures to provide for wear tolerances and production tolerances.

(f) Finish pump assembly in accordance with FS 370A.

3.3.1.3.2 Tank Strap I189687.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002.

(c) Strip and cadmium plate in accordance with Specification QQ-S-416.

3.3.1.3.3 Tank Assembly 189686.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002 and oil the steel tank fittings with parolene No. 3.

(c) Remove corrosion in accordance with OS 7010.

(d) Repair as necessary as authorized herein.

(e) Add 108443 modification placard by tack welding at corners in area adjacent to location of old placard after stamping the part no., contract order no., and under modification, inc., stamp "Reconditioned" with the date of reconditioning and inspection stamp.

(f) Pressure test tanks for leakage with 5 psi air pressure.

(g) Finish in accordance with FS 370A.

3.3.1.3.4 Cap Assembly I189712.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002.

(c) Finish in accordance with Drawing I189712 and FS 370A.

3.3.1.3.5 Anti-icer Fluid Tank Gauge 189677.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002.

(c) Finish in accordance with Drawing 189677 and FS 370A.

3.3.1.3.6 Adapter 189680 and Fitting 84-189653.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002.

(c) Strip and cadmium plate in accordance with Specification QQ-P-416.

3.3.1.3.7 Filter Assembly No. 7979.-

(a) Inspect for nonrepairable conditions.

(b) Disassemble and clean all parts thoroughly in accordance with OS 7002.

(c) Reassemble.

3.3.2 Instrument Piping Installation 804-189690, 84-189690 and 824-189690:

3.3.2.1 Centralized Air Filter Installation 804-183890, 824-183890 and 814-183890:

3.3.2.1.1 Air Filter AN5822-1.- The following used government furnished air filters are interchangeable alternates for AN5822-1 air filter.

Skinner - 10 C.F.M.	27310
Purolator Type PA-12	28993
Purolator - 10 C.F.M. Type PA-11	28102

(a) Inspect for nonrepairable conditions.

(b) Disassemble and clean thoroughly in accordance with OS 7002. Dry the filter element by blowing off with compressed air. This also serves to remove any remaining particles wedged between the discs. Do not blow the air at right angles as this tends to wedge the particles into the filter.

(c) Install new gaskets and reassemble the filter.

(d) Finish in accordance with FS 370A.

3.4 Authorized Repairs:

3.4.1 Anti-icer Piping Installation 189655, 84-189655 and 84-189680:

3.4.1.1 Anti-icer Tank and Pump Installation 84-189646:

TITLE: POWER PLANT GROUP - MODEL C-45G AND C-45H

ISSUED 5-26-53

WRITTEN BY E. M. Fauquet, Revised - T. R. Taylor REVISED 8-9-54

3.4.1.1.1 Pump Assembly AN6100-1, J 2-5-24D-4-1/8 P.T. and 20820-1.-

(a) When the armature of the pump motor is not oil free after cleaning with trichlorethylene, it shall be baked for three hours at 93°C (200°F).

(b) If the commutator bars are worn or pitted to an extent requiring resurfacing, turn the outside diameter of the commutator on a lathe until scratches and brush pits are removed. Under cut the mica to the recommended depth of 1/32-inch. Clean and burr the slots to eliminate any possibility of short circuits.

If the commutator is not worn too much, polishing with fine sandpaper is sufficient. Do not give the commutator a high polish since this causes a high contact voltage drop. Blow off with compressed air to remove sand and metal particles.

3.4.1.1.2 Tank Assembly 189686.-

(a) Tanks with excessively corroded bottom areas may be reworked by cutting out the corroded area and welding in new skin of the same material as original skin.

(b) Tanks that have been welded will be cleaned after welding in accordance with MP 1111.

(c) Chase threads that are slightly damaged.

4. INSPECTION

4.1 General.- The parts will be inspected to the general acceptable quality standards of OS 7008 and the specific quality standards listed below.

4.1.1 Anti-icer Piping Installations 189655, 84-189655 and 84-189680:

4.1.1.1 Anti-icer Tank and Pump Installation 84-189646:

4.1.1.1.1 Tank Assembly 189686.-

(a) Tank fittings with threads that vary from tolerances within 1/2 thread are acceptable provided the air test requirements can be met.

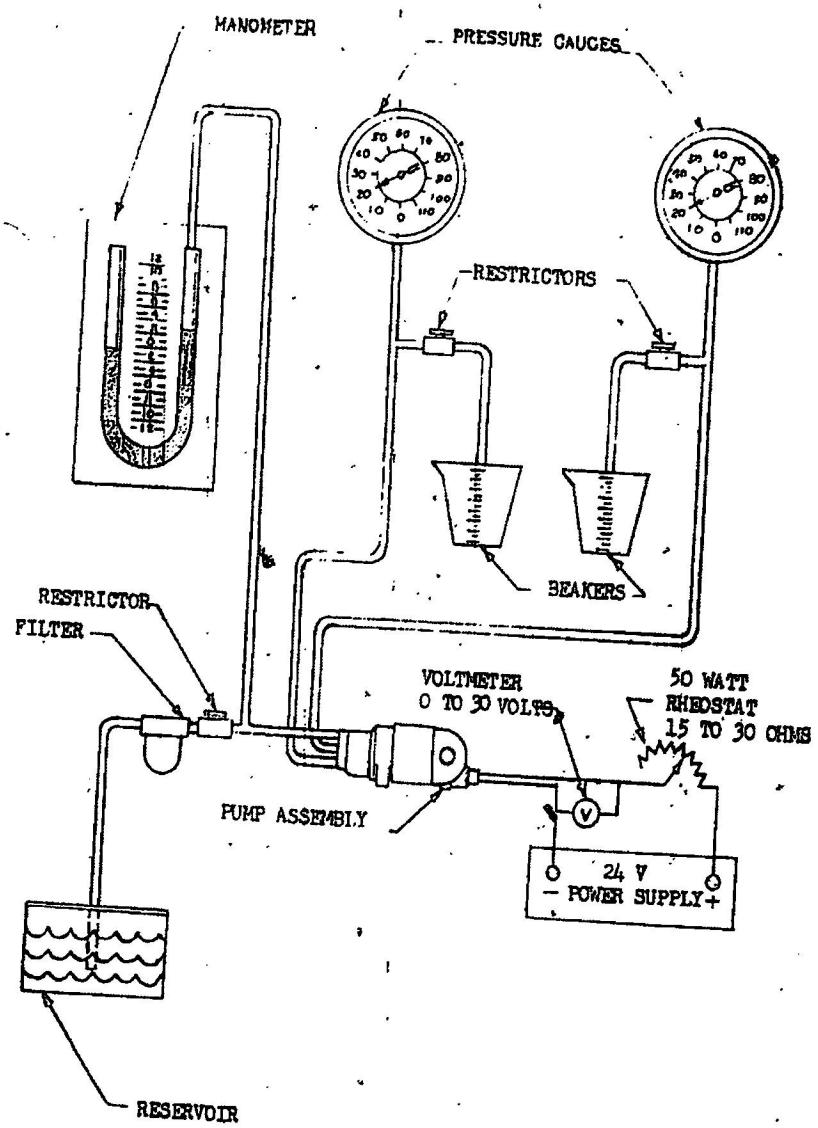

FIGURE 1

WRITTEN BY: E. M. Sargent	DATE ISSUED: 5-26-53	OVERHAUL SPECIFICATION POWER PLANT GROUP - MODEL C-45E AND C-45H		
PROJECT ENGINEER: E. Yates				
APPROVAL: W. J. [illegible]	DATE REVISED:	Beech Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO 9001	PAGE 19
APPROVAL: [illegible]				

TITLE POWER PLANT GROUP - MODEL J-45G AND J-45T

ISSUED 8-9-54

WRITTEN BY T. R. Taylor

REVISED

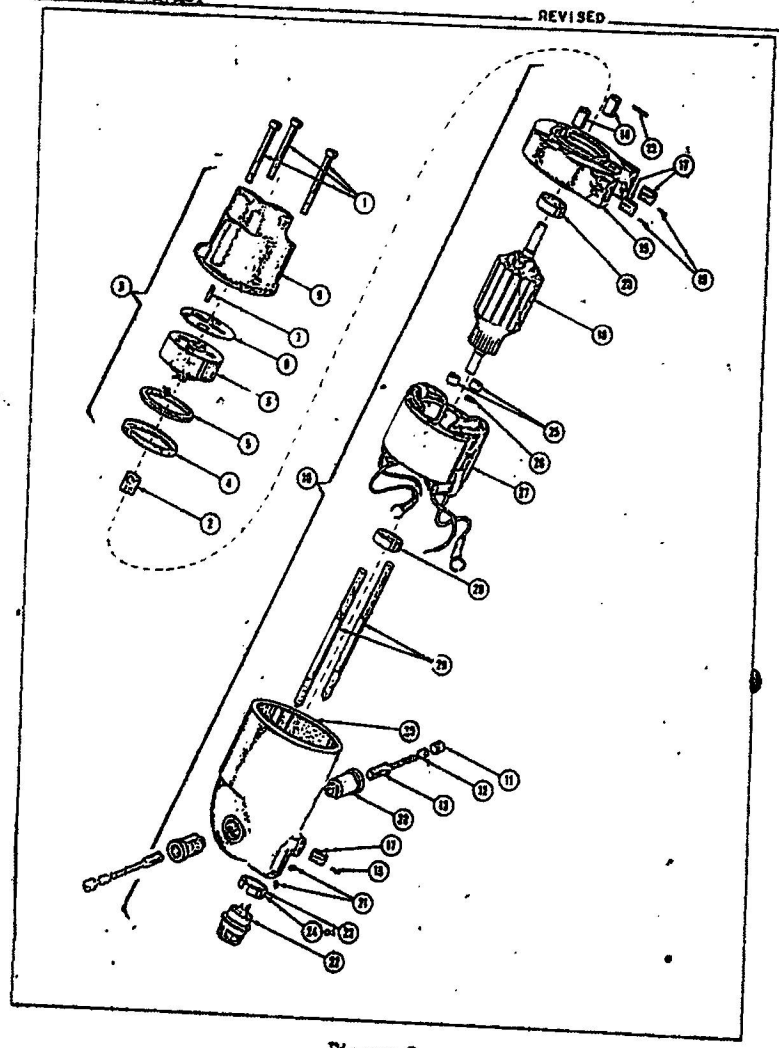

Figure 2
Adel J2.5-24D-4-1/8 P.T. Pump

TITLE POWER PLANT GROUP - MODEL C-45G AND C-45H

ISSUED 8-9-54

WRITTEN BY T. R. Taylor

REVISED 10-1-54

Index for Figure 2

Index	Part No.	Nomenclature
1.	10-32 x 1-1/2	Screw, Pump Assembly Retaining
2.	8333	Coupling, Pump Drive
3.	8310-1	Pump Assembly
4.	8316	Ring, Lock
5.	8315	Equalizer, Lock Ring Pressure
6.	8320-1*	Stator Assembly
7.	8334	Pin, Stator Locating Dowel
8.	8353	Gasket, Stator
9.	8311-2	Housing, Pump
10.	8305-2-4	Motor Assembly
11.	7868	Screw, Brush Cover
12.	7867	Screw, Brush Adjusting
13.	7865	Brush, Motor
14.	8342	Nut, Mounting Plate Retaining
15.	8312	Plate, Mounting
16.	8318	Pin, Insert Lock
17.	8317	Insert, Mounting Leg
18.	8371-2	Armature
19.	8332	Pin, Drive
20.	7845	Bearing, Armature
21.	7831	Screw, Electrical Receptacle Set
22.	8381-4	Receptacle, Electrical
23.	8389	Sleeve, Electrical Receptacle
25.	8347	Nut, Field Coil Lock
26.	8388	Washer, Ground
27.	8372-2	Coil, Field
28.	7869	Holder, Brush
29.	8341	Stud, Field Coil Retaining
30.	8313	Housing, Motor

* Stator assembly 19880 is an authorized substitute for stator assembly 8320-1.