

**MAINTENANCE INFORMATION  
AND ILLUSTRATED PARTS BREAKDOWN**

**for**

**LANDING GEAR MOTOR**

Part Number 35-380094 used on

**BEECHCRAFT**

**BONANZAS 33, 35 and 36**

**PUBLISHED BY**

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# **MAINTENANCE INFORMATION AND ILLUSTRATED PARTS BREAKDOWN**

**for**

## **LANDING GEAR MOTOR P/N 35-380094**

### **Disassembly (See illustration for index numbers)**

1. Remove the 2 nuts (2) which are located on the end bracket (12). This will permit removal of the two end brackets and the armature assembly (16) from the field assembly (15). Do not disconnect wiring between commutator end bracket (13) and field assembly (15) unless necessary for future checking and/or repairs.
2. Loosen the 2 set screws (5) in the commutator end bracket (13) and remove brush and spring assembly (17).
3. Remove bearings (3) and (4) from armature shaft.

### **Cleaning**

1. Clean all parts, except sealed bearings, with PD680 solvent or equivalent.
2. Do not leave armature or coil of motor in solvent (permissible to immerse and remove immediately).
3. Dry all parts prior to reassembly.

### **Inspection**

Inspect all parts and scrap those that are nonrepairable.

### **Rejection**

The specific conditions listed below are cause for rejection.

1. Wear which is greater than the allowable wear tolerances given.
2. Damage which cannot be corrected by one or more of the authorized repairs listed in this manual.
3. Armature assemblies that have shafts that are heavily scored, or that are worn to the extent that bearings are loose on the shaft, or that have loose commutator segments.
4. Armature assemblies and field coils which have cracked, burned, or excessively worn insulation.
5. All screw that are severely damaged or have stripped, excessively worn or scored threads.
6. All gears on which teeth are severely worn.
7. Parts that are cracked, chipped, or broken.
8. Parts that have corrosion or other defects that cannot be repaired within the requirements of this manual.

### **Repair and Reconditioning**

Recondition and make necessary repairs as follows:

Retape or replace wiring that extends outside of the motor case if dirty or discolored. Do not disassemble more than necessary for complete check and reconditioning as follows:

1. 13981A Armature  
Visually inspect for excessive wear or damage. If noticeable step is worn on involute surface of gear end of shaft, replace armature. Check armature with "growler" for short circuit. If there is a short or open circuit, replace with new or rebuilt armature. If armature tests satisfactorily, recut surface of commutator (if burned, pitted, or uneven) until it is smooth, then regroove. Minimum acceptable diameter of commutator shall be .975 inches.
2. 20-7609 Bearing  
30-7623 Bearing  
With bearing clean and dry, rotate race by hand and feel for roughness, side-play and end-play; if noticeably greater than that of a new bearing, scrap and replace. Perform a magnetic particle inspection per MIL-I-6868.
3. 14400 Field Coil Assembly  
Visually inspect coils, poles, and housing for severe wear or damage. Replace any part as necessary. Using a "Hi-Pot" tester, check for high potential shorts by applying 500 volts of single phase, 60 cycle alternating current between the field coil wiring and housing for 5 to 15 seconds duration. No breakdown is permissible. Perform tests for continuity. Do not disassemble further unless damaged, or a short or open circuit is indicated, then disassemble only as necessary to repair.
4. 33107-A Brush Holder Assembly  
Visually inspect brush plugs, insulator and brush holder for severe wear or damage.
5. 0-6864 End Bracket  
\*0-6865  
Visually inspect end bracket for severe wear or damage. \*NOTE: Do not disassemble from field coil assembly (4) unless necessary for further testing, rework, or replacement.
6. Visually inspect the following parts. Reuse all that show no severe wear or damage.
 

7978	Set Screw
10-7822	
10-7888	Stud
7469	Nut
0-3518	Load Spring
8058	Drive Pin
0-3883	Cord Bushing
0-3896	
39109-A	Lead and Clip Assembly
P-O-750	Tape
YZ10-1	Connector
106242-3-00014	Insulator
MS20659-5	Terminal

0-2497	Washer
10-4431	Disc
5705	Screw
8047	Name Plate

**New Parts Required**

*Parts Not To Be Reused - To Be Supplied New*

(2)	35175-A	Brush Assembly
(1)	30-7623	Bearing
(2)	MS24665-138	Cotter Pin

**Authorized Repairs. These are in addition to the specific repairs noted in Repair and Reconditioning.**

1. Slight scoring of shafts may be corrected by lapping carefully with a flat oil stone.
2. Smooth minor nicks, burrs and scratches.
3. Strip and replate, with same type plating as removed, those parts that are scratched or worn through the plating.
4. Chase the threads to clean or smooth minor thread damage.
5. Remove all corrosion.
6. Replace severely damaged or unserviceable parts with new or serviceable parts.
7. Revarnish all wiring as needed.
8. Bushings that check within dimensional range of a new part may be reused.

**Reassembly (See illustration for index numbers)**

Replace all scrapped parts with new or serviceable parts.

1. Repack all bearings with MIL-G-23827 grease. Install needle bearings (7) in end bracket (13). Place bearings on armature shaft. NOTE: The bearing opposite the gear end shall be placed on the shaft in such a way that the shield faces inside of the motor. The needle bearing is to be installed with open end facing the outside of the motor.
2. Place new brush assembly and brush holder in the commutator end bracket. Paint around the brush holders and adjacent parts of the casting with P-2163. Before installing the 2 set screws on the outer side of commutator end bracket, place 2 or 3 drops of red Glyptal P-2081 in each set screw hole to cement them in place.
3. Place commutator end bracket, field coil assembly, armature, and end bracket in place and secure with 2 nuts.
4. Stake all flat-head screws at slots. Install cotter pin at brush caps.

**Functional Test**

1. Connect the motor to 12 volts. Run-in to assure full seating of brushes.

2. Using a “Hi-Pot” tester, check for high potential shorts by applying 500 volts of single phase, 60 cycle alternating current between motor wiring and motor frame for a maximum duration of 15 seconds. No breakdown is permissible.
3. Check motor operation at no-load, with both clockwise and counterclockwise rotation. Noise and vibration shall not greatly exceed that of the average motor.
4. With motor running at no-load, current drain shall not exceed 6 1/2 amperes.

## MOTOR DATA

Rated voltage - 12 volts DC

Horsepower - 1/4 to 1/5

Weight - 2 lbs. 12 oz.

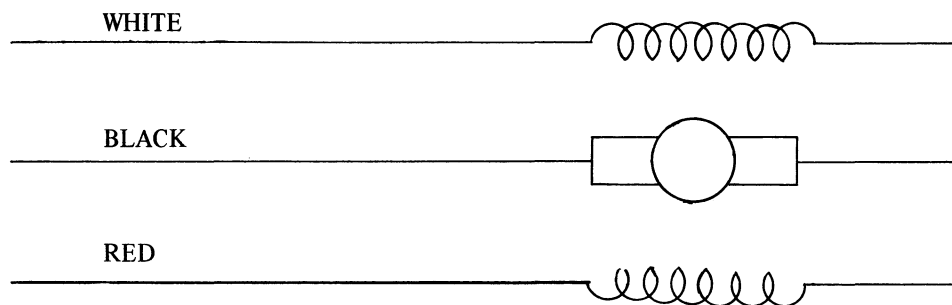
Duty Cycle - Intermittent

Type - Series

Brush Replacement - New brush length is 17/32 inch.

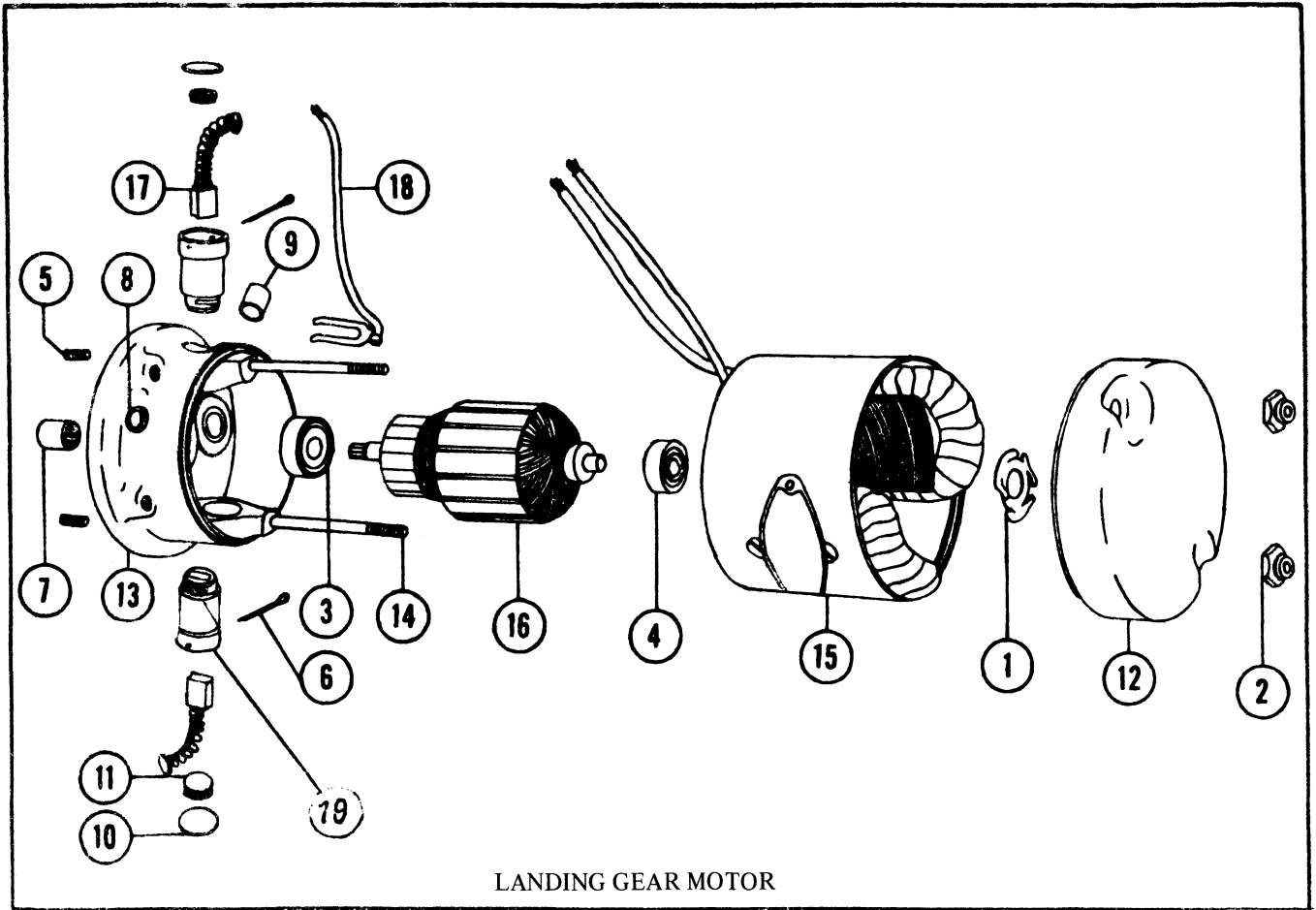
Minimum brush length is 7/32 inch.

Commutator - Clean commutator every second brush change with a light cut. Replace armature when the commutator reaches a minimum diameter of 31/32 inch.



### Electrical Wiring Schematic

The split field in the series-wound motor allows the motor to drive in either direction. The electric connections for shaft rotation (facing the pinion gear) are: for counterclockwise rotation connect the black and red leads to the line, to reverse connect black and white leads to the line.



LANDING GEAR MOTOR

Index	Part Number	Description	Quantity Required
	IS14400	Landing Gear Retract Motor	1
1	0-3518	Load Spring	2
2	7469	Nut	2
3	30-7623	Ball Bearing	1
4	20-7609	Ball Bearing	1
5	7978	Set Screw	2
6	MS24665-138	Cotter Pin	2
7	20-7642	Bearing (Needle)	1
8	0-3883	Cord Bushing	1
9	0-3896	Cord Bushing	1
10	10-4431	Fibre Disc	2
11	5705	Brush Holder Screw	2
12	0-6864	End Bracket	1
13	0-6865	Comm. End Bracket	1
14	10-7888	Stud	2
15	14818-F	Field	1
16	13981-A	Armature	1
17	35107-A	Brush & Spring Assem.	2
18	39109-A	Lead and Clip Assem.	1
19	33107A	Brush Holder Assem.	2
	8047	Name Plate	1
	0-2497	Fibre Washer	2
	20-3841	Sleeve	3
	0-5113	Clip	1
	0-5114	Clasp	2
	10-7822	Set Screw	2
	8058	Drive Pin	2

