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**TECHNICAL MANUAL**

**OVERHAUL INSTRUCTIONS**

**DEPOT LEVEL MAINTENANCE**

**ELECTROMECHANICAL LINEAR ACTUATOR**

**PART NO.**  
**541928-1-1**  
**and**  
**541928-2-1**

This Change incorporates IRACs 1 and 2.  
Basic publication and all changes have been collated to make this a complete publication.

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**INTRODUCTION****DEPOT LEVEL MAINTENANCE****ELECTROMECHANICAL LINEAR ACTUATOR****Part Numbers 5419281-1 and 541928-2-1**

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**1. GENERAL.**

2. This technical manual provides overhaul and test instructions for Electromechanical Linear Actuator, Part Nos. 541928-1-1 and 541928-2-1, manufactured by The Garrett Corporation, AiResearch Manufacturing Division, Los Angeles, California. The actuator is shown in Figure 1.

**3. PURPOSE.**

4. The actuator converts electrical energy into me-

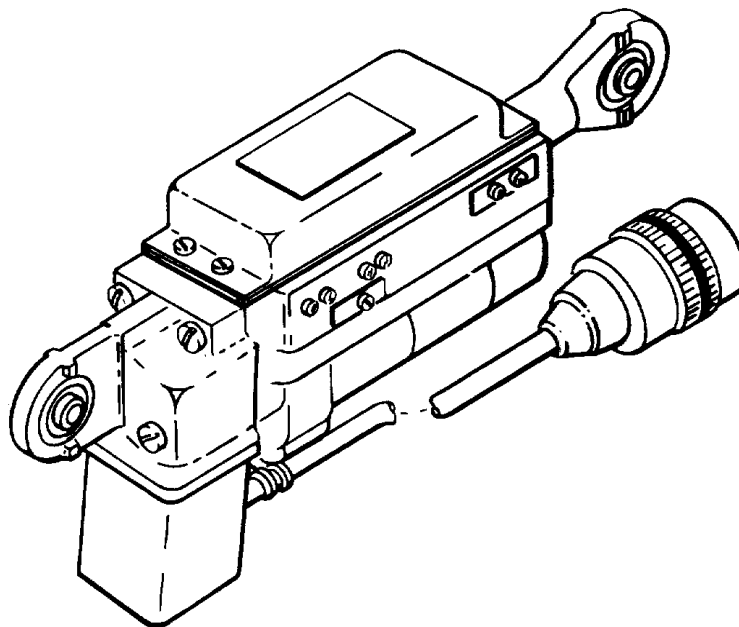
chanical linear movement.

**5. LEADING PARTICULARS.**

6. Leading particulars for the actuator are given in Table 1.

**7. CONTENTS.**

8. Work Packages 2 and 3 of this technical manual contain overhaul and test instructions, respectively, for Electromechanical Linear Actuator, Part Nos. 541928-1-1 and 541928-2-1.



**Figure 1. Electromechanical Linear Actuator, Part Nos. 541928-1-1 and 541928-2-1**

Table 1. Leading Particulars

Operating voltage . . . . .	115 volts ac at 400 Hz	AFCS position cup of variable resistor:	
Operating current (at 350 lb load) . .	0.88 amp (max)	Pin E . . . . .	High (extend)
Stall current . . . . .	1.0 amp	Pin F . . . . .	Wiper
Duty cycle . . . . .	continuous at rated load and 21.1° C (70° F)	Pin H . . . . .	Low (retract)
Retracted length to mechanical stops* . . . . .	8.029 in (max.)	Monitoring cup of variable resistor:	
Extended length to mechanical stops* . . . . .	10.329 in (min.)	Pin D . . . . .	High (extend)
Retracted length to limit switch setting* . . . . .	8.059 ± 0.005 in.	Pin J . . . . .	Wiper
Extended length to limit switch setting* . . . . .	10.309 ± 0.005 in.	Pin K . . . . .	Low (retract)
Retract stroke switch:		Indicator cup of variable resistor:	
Normally open (above) . . . . .	8.479 ± 0.010 in.	Pin L . . . . .	High (extend)
Normally closed (below) . . . . .	8.479 + 0.005/ - 0.026 in.	Pin M . . . . .	Wiper
Extended stroke switch:		Pin N Low (retract)	
Normally open (above) . . . . .	9.139 ± 0.005 in.	Retract stroke switch:	
Normally closed (below) . . . . .	9.139 + 0.005 -0.016 in.	Pin P . . . . .	Normally open
Operating load:		Pin R . . . . .	Common
Rated output . . 350 lb at 0.08 in per sec + 20%		Pin S . . . . .	Normally closed
Maximum operating load (tension or compression) . . . . .	1500 lb (max)	Pin T . . . . .	Normally open
Ambient operating temperature		Pin U . . . . .	Common
Range . . . . .	-54° to 93° C (-65° to 200° F)	Pin V . . . . .	Normally closed
Electrical connections:		Extend stroke switch:	
Electric motor:		Pin W . . . . .	Normally open
Pin A . . . . .	Extend (pos)	Pin X . . . . .	Common
Pin B . . . . .	Ground (neg)	Pin Y . . . . .	Normally Closed
Pin C . . . . .	Retract (pos)	Pin Z . . . . .	Normally open
		Pin a . . . . .	Common
		Pin b . . . . .	Normally closed
		Weight . . . . .	2.5 lb (approx)
		Axial Rod End Play . . . . .	0.007 in max with 5lb reversal load applied

\*Measured from centerlines of end cap and rod-end connector bearing eyes.

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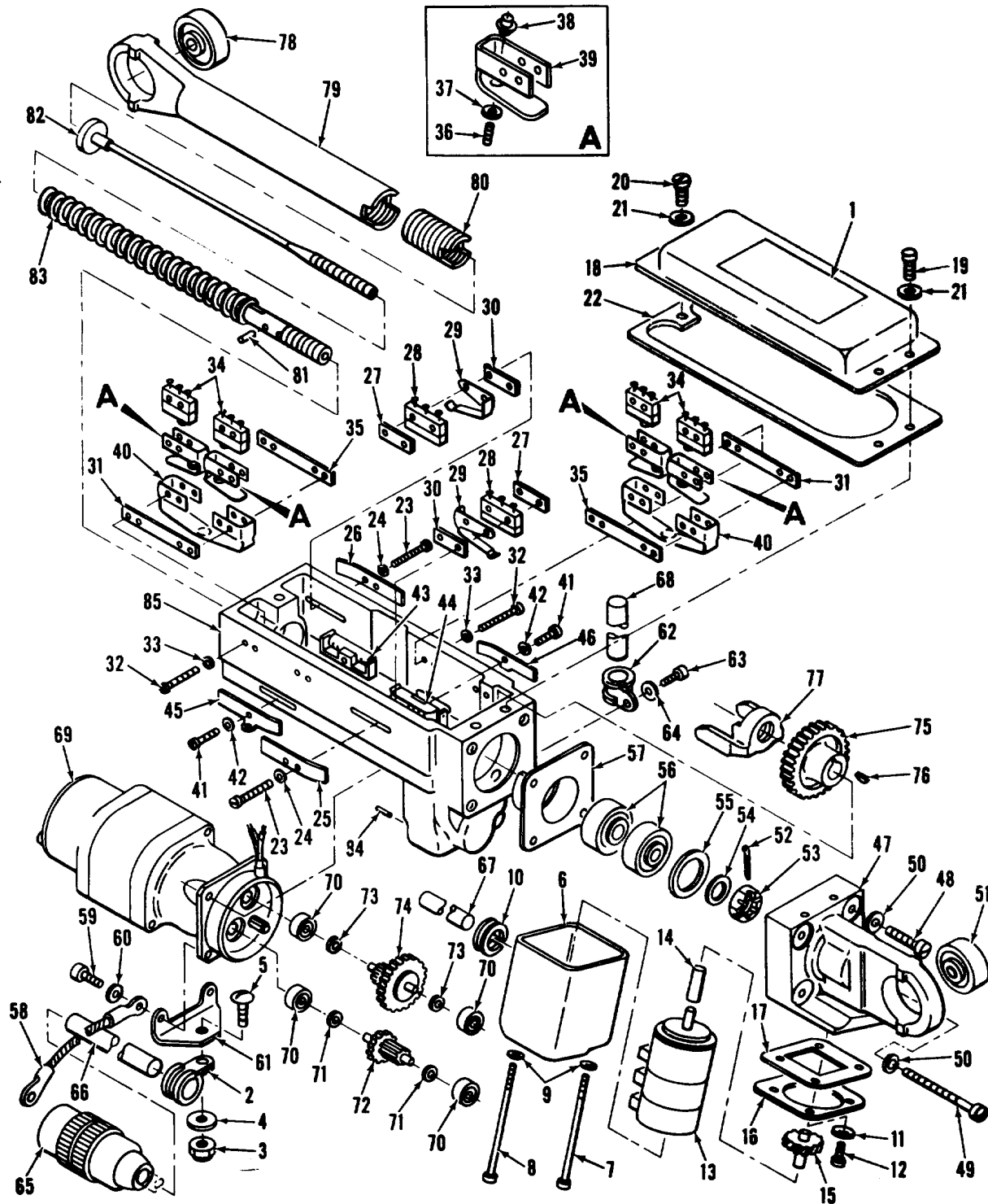
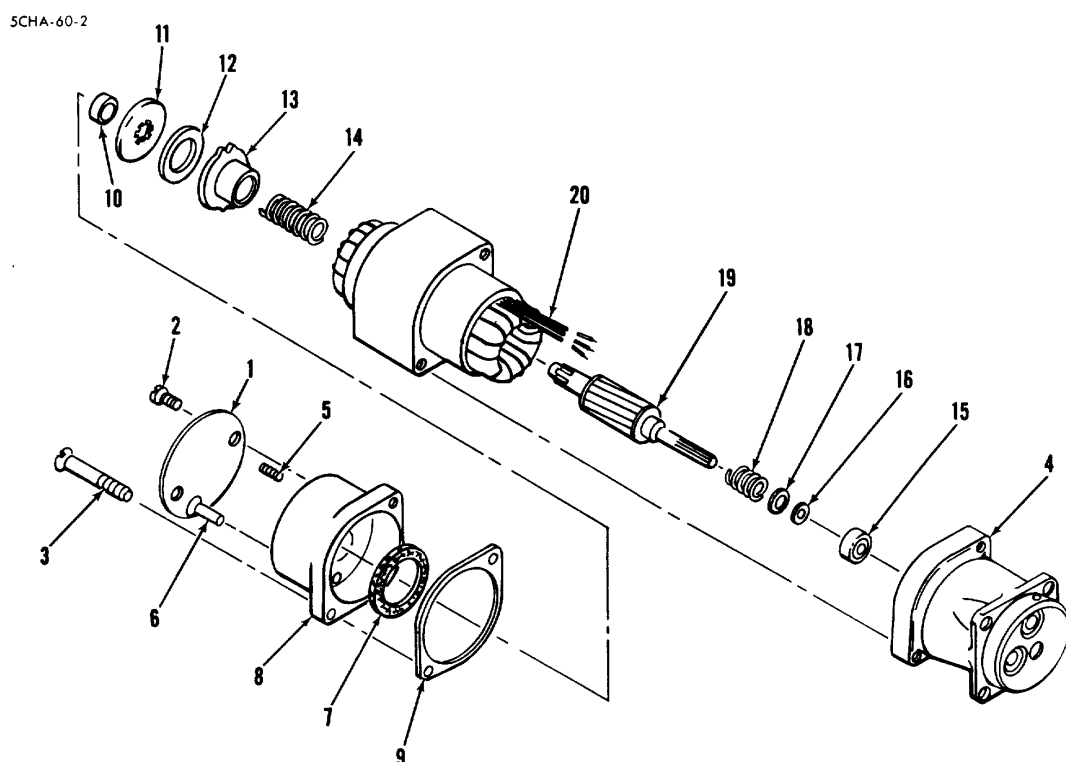


Figure 1. Electromechanical Linear Actuator, 541928-1-1 Exploded View (Sheet 1 of 3)



1. Plate	29. Actuator	57. Retainer
2. Clamp	30. Lockplate	58. Jumper Assembly
3. Nut	31. Spacer	59. Screw
4. Washer	32. Screw	60. Washer
5. Screw	33. Washer	61. Bracket
6. Cover	34. Switch	62. Clamp
7. Screw	35. Spacer	63. Screw
8. Screw	36. Setscrew	64. Washer
9. Washer	37. Washer	65. Connector
10. Grommet	38. Nut	66. Sleeving
11. Clamp	39. Adapter	67. Sleeving
12. Screw	40. Bracket	68. Sleeving
13. Resistor	41. Setscrew	69. Motor
14. Coupling	42. Washer	70. Bearing
15. Gearshaft	43. Door Assembly	71. Washer
16. Plate	44. Door Assembly	72. Gear Assembly
17. Gasket	45. Plate	73. Washer
18. Capacitor	46. Plate	74. Gear Assembly
19. Screw	47. End Cap	75. Spur Gear
20. Screw	48. Screw	76. Key
21. Washer	49. Screw	77. Follow-Up Nut
22. Cover	50. Washer	78. Bearing
23. Screw	51. Bearing	79. Connector
24. Washer	52. Pin	80. Power nut
25. Plate	53. Nut	81. Pin
26. Plate	54. Washer	82. Torque Bar
27. Lockplate	55. Washer	83. Jackscrew
28. Switch	56. Bearing	84. Pin
		85. Housing
		86. Rivet

**Figure 1. Electromechanical Linear Actuator, Exploded View (Sheet 3)**



1. Plate	6. Pin	11. Disk	16. Washer
2. Screw	7. Lining	12. Lining	17. Washer
3. Screw	8. End Bell Assembly	13. Armature	18. Spring
4. End Bell Assembly	9. Washer	14. Spring	19. Rotor Assembly
5. Screw	10. Bearing	15. Bearing	20. Stator Assembly

**Figure 2. Alternating-Current Motor, Part No. 516021-4-1, Exploded View**

## 5. CLEANING.

6. To clean the disassembled actuator, proceed as follows:

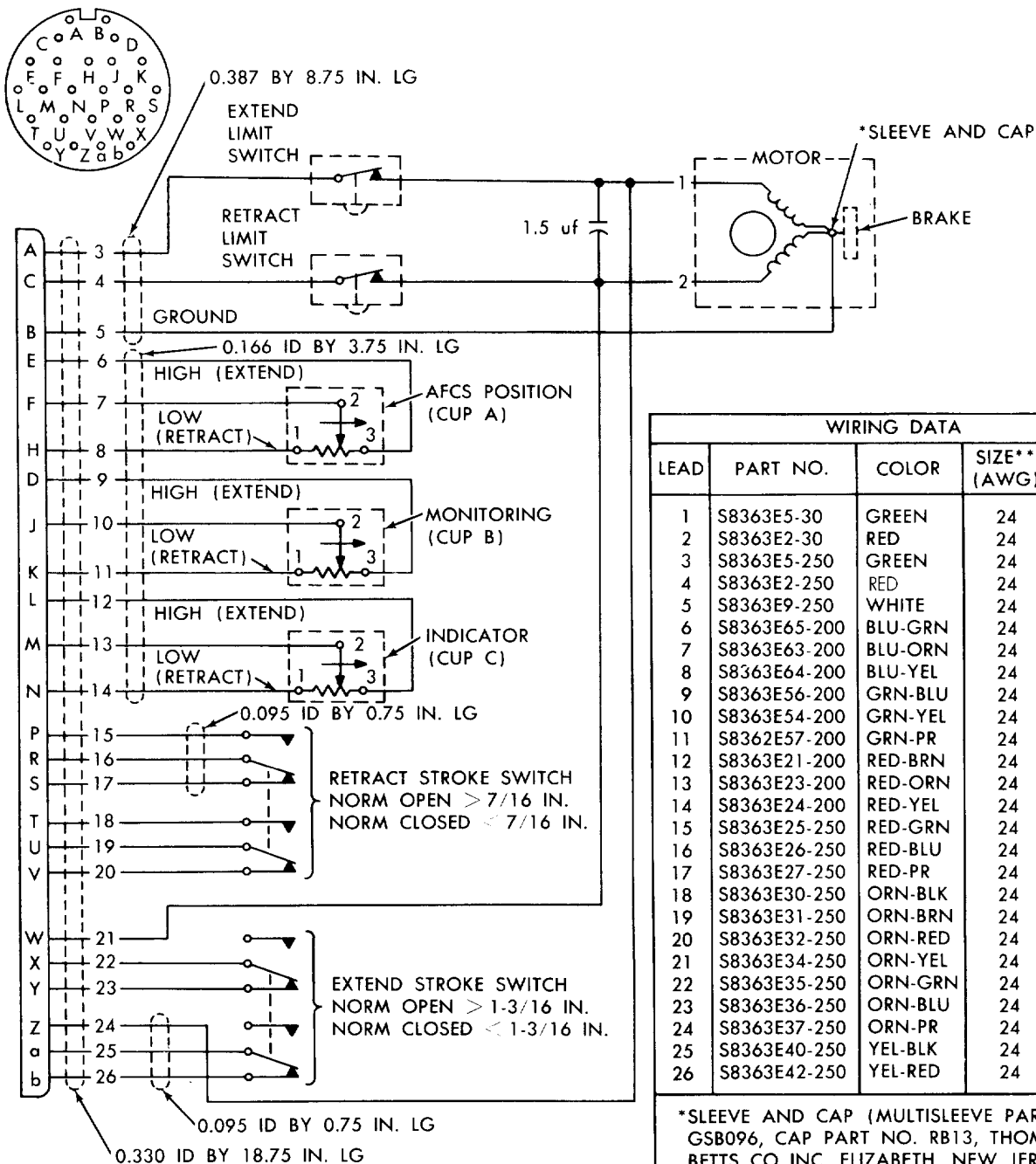
### **WARNING**

Use dry-cleaning solvent and methyl-ethyl-ketone in a well-ventilated area. Avoid breathing fumes. Avoid skin contact with methyl-ethyl-ketone. Keep away from flame. Do not direct compressed air against skin.

### **Note**

Cleaning of used parts is required before inspection is performed. Parts which will be replaced by a new component need not be cleaned.

a. Wash all nonelectrical parts, except bearings (51, 56, and 70, figure 1, and 10, 15, figure 2), with dry-cleaning solvent, Federal Specification P-D-680, or equivalent, and dry thoroughly with a clean, lint-free cloth or with compressed air. Remove cement deposits from sealed mating surfaces and tapped holes with methyl-ethyl-ketone, Federal Specification TT-M-00261C or ASTM D 740.



WIRING DATA				
LEAD	PART NO.	COLOR	SIZE** (AWG)	LENGTH (IN.)
1	S8363E5-30	GREEN	24	3
2	S8363E2-30	RED	24	3
3	S8363E5-250	GREEN	24	25
4	S8363E2-250	RED	24	25
5	S8363E9-250	WHITE	24	25
6	S8363E65-200	BLU-GRN	24	20
7	S8363E63-200	BLU-ORN	24	20
8	S8363E64-200	BLU-YEL	24	20
9	S8363E56-200	GRN-BLU	24	20
10	S8363E54-200	GRN-YEL	24	20
11	S8362E57-200	GRN-PR	24	20
12	S8363E21-200	RED-BRN	24	20
13	S8363E23-200	RED-ORN	24	20
14	S8363E24-200	RED-YEL	24	20
15	S8363E25-250	RED-GRN	24	25
16	S8363E26-250	RED-BLU	24	25
17	S8363E27-250	RED-PR	24	25
18	S8363E30-250	ORN-BLK	24	25
19	S8363E31-250	ORN-BRN	24	25
20	S8363E32-250	ORN-RED	24	25
21	S8363E34-250	ORN-YEL	24	25
22	S8363E35-250	ORN-GRN	24	25
23	S8363E36-250	ORN-BLU	24	25
24	S8363E37-250	ORN-PR	24	25
25	S8363E40-250	YEL-BLK	24	25
26	S8363E42-250	YEL-RED	24	25

\*SLEEVE AND CAP (MULTISLEEVE PART NO. GSB096, CAP PART NO. RB13, THOMAS AND BETTS CO INC, ELIZABETH, NEW JERSEY)

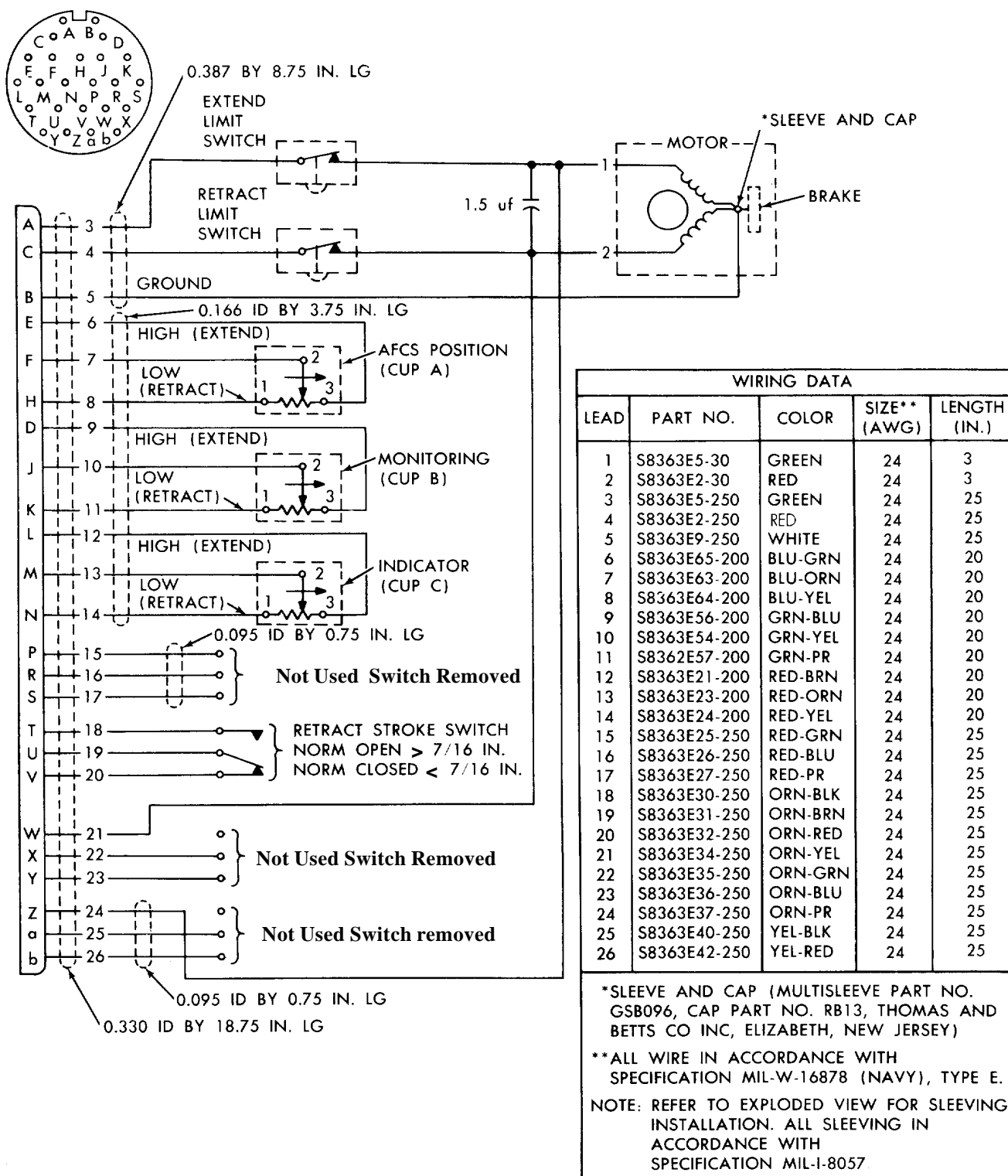
\*\*ALL WIRE IN ACCORDANCE WITH SPECIFICATION MIL-W-16878 (NAVY), TYPE E.  
NOTE: REFER TO EXPLODED VIEW FOR SLEEVING INSTALLATION. ALL SLEEVING IN ACCORDANCE WITH SPECIFICATION MIL-I-8057

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Actuator 541928-1-1

Figure 4. Wiring Diagram (Sheet 1)





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Actuator 541928-2-1

Figure 4. Wiring Diagram (Sheet 2)