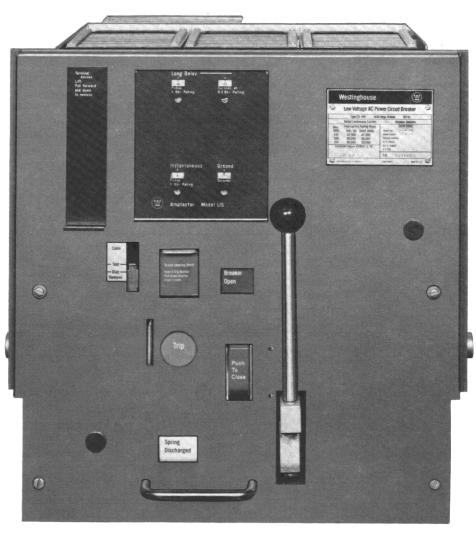


Westinghouse Electric Corporation Switchgear Division East Pittsburgh, Pa. 15112 U.S.A. Renewal Parts Data 33-790-1 E

Page 1

May 1980 New Information and Supplements I.B. 33-790-1E

Low-Voltage Power Circuit Breakers Types DS and DSL



The following breakers are included in R.P.D. 33-790-1E *

| Breaker Type | Frame Size Amperes |
|-----------------|--------------------|
| DS-206 | 800 |
| DSL-206 | 800 |
| DS-206S | 800 |
| DS-416 | 1600 |
| DSL-416 | 1600 |
| DS-416S | 1600 |
| DS-420 | 2000 |
| DS-632 | 3200 |
| DS-840 | 4000 |

^{*}Data applies to Drawout Breakers only.

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| | |

Parts Identification

Renewal Parts Data 33-790-1E is supplementary information to Instruction Book 33-790-1E, *Instructions for Low Voltage Power Circuit Breakers Types DS and DSL*. The illustrations in this Renewal Parts Data show parts and sub-assemblies which are identified by name and style number in the associated tabulations. Additional information and illustrations are shown in the figures in I.B. 33-790-1E, which show many sub-assemblies and detail parts in order to illustrate their function and location in the assembly. Some of the detail parts shown in the instruction book are recommended only as part of a sub-assembly to facilitate their replacement or installation in the field. The availability of parts and sub-assemblies is indicated by style number in the following data.

If the item in question cannot be identified by style number, refer to the Figure number, name and item number as shown in this RPD (or I.B. 33-790-1E) along with the breaker type and its shop order number or style number as shown on the nameplate on the front cover of the circuit breaker.

The above nameplate information will also be required when adding components, which are not direct replacements, to a circuit breaker.

RECOMMENDED SPARE PARTS

Spare parts recommended for stocking are indicated in the following data by the symbol ®. An adequate stock of spare parts will help minimize emergency situations and can substantially reduce production down time.

The amount of investment to be made in spare parts stock can be dependent on a number of individual factors. The items recommended and the quantities specified below are intended as a guide.

For 1 to 5 Breakers—Items marked ® in sufficient quantity for one breaker.

For 5 to 10 Breakers—Items marked ® in sufficient quantity for two breakers.

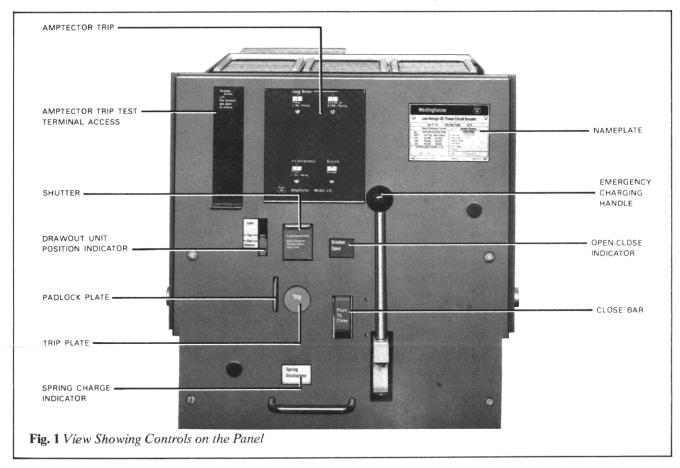
Over 10 Breakers—One spare complete breaker, plus recommended spare parts for one breaker.

ORDERING INFORMATION

- Name item and give its style number. Specify quantity desired.
- 2. State method of shipment desired.
- **3.** Send all orders or correspondence to nearest Westinghouse Sales Office.

PRICING INFORMATION

Many of the style numbers in this data are listed in Price and Entry Guide 120 and PL 121.



Items Common to All Breaker Types

AUXILIARY SWITCHES-FIGURE NO. 2

When replacing an existing auxiliary switch, order basic switch assembly style 449D622A01 which includes 2 "a" and 2 "b" contacts. Style 449D622A01 is suitable as a replacement on all breakers except those equipped with mechanical interlocks, and those wired per diagram figures 10D, 10E, 10F and 10G.

When adding auxiliary switches to an existing breaker, specify the number of switches required together with the nameplate information as itemized on page 2.

SECONDARY DISCONNECTING CONTACTS—FIGURE NO. 3

When replacing an existing disconnecting contact, order style 591C498G06 which includes an 8 point block plus mounting hardware.

When replacing an existing disconnecting contact cover, order style 588C729G02.

When adding secondary disconnecting contacts to an existing breaker, specify the number of upper contacts and the number of lower contacts together with the name-plate information as itemized on page 2.

TYPE DS CIRCUIT BREAKER FASTENER KIT

Includes an assortment of retaining rings, truare rings, "E" rings and "X" washers in a plastic bag.

Style 3586A86G01 Recommended spares:

- 1 for one breaker
- 2 for two to five breakers
- 3 for six to twenty breakers
- 4 for over twenty breakers

STANDARD HARDWARE

Standard hardware such as bolts, nuts, washers, etc. are not listed in this data. Such items should be purchased locally. **Note:** Bolts holding copper details together in the pole unit, and bolts holding levering in cranks should be SAE Grade 5.

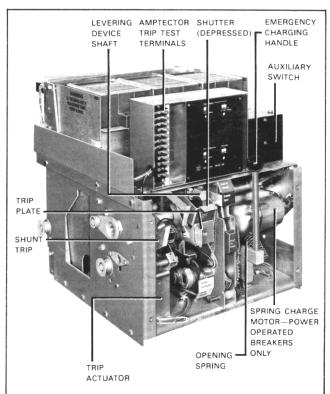


Fig. 2 DS 416 Breaker with Front Panel Removed

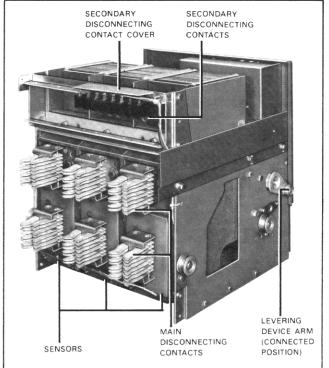
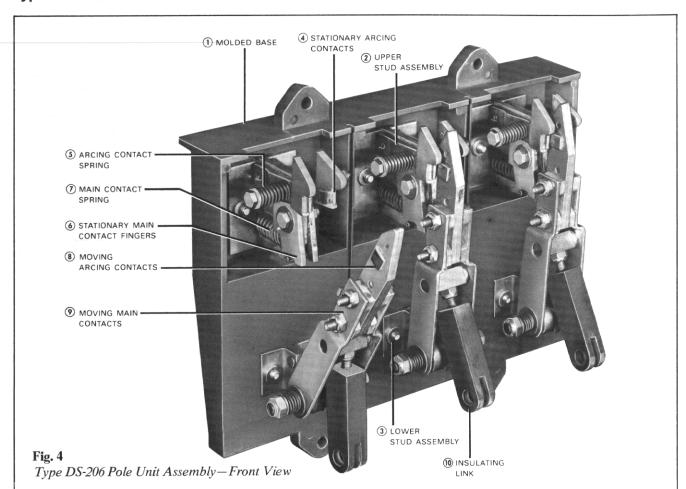


Fig. 3 Rear View Showing Levering Device Arm in CONNECT Position

Type DS-206, DSL-206 and DS-206S Pole Unit



| | | | DS-206 | | DSL-206 ⁽¹⁾ | | DS-206S ⁽²⁾ | |
|--|------------------|-----------------------|---------------------------------|--|---------------------------------|--|----------------------------------|--|
| Description | Fig. | Item No. | No. Req. Per Bkr. | Style Number | No. Req. Per Bkr. | Style Number | No. Req. Per Bkr. | Style Number |
| Three Pole Unit Assembly Complete | 4 | _ | 1 | 140D152G01 | 1 | 140D152G03 | 1 | 9145D41G01 |
| Following are included in Three Pole Unit Assembly: | | | | | | | | |
| Molded Base Upper Stud Assembly Lower Stud Assembly | 4 4 4 | 1 2 3 | 1 3 3 | 140D150H01 591C653G01 591C652G01 | 1 3 3 | 140D150H01 591C653G03 591C652G03 | 3 3 3 | 553F204H01 592C928G01 592C927G01 |
| Following are included in Upper Stud Assembly: | | | | | | | | |
| Stationary Arcing Contact—R.H. Stationary Arcing Contact—L.H. Stationary Arcing Contact Spring Stationary Main Contact Finger Stationary Main Contact Spring | 4 4 4 4 | 4 4 5 6 7 | 3 R 3 R 6 R 6 R 3 R | 503B025G01 503B025G02 503B027H01 809A263G01 503B027H08 | 3 ® 3 ® 6 ® 6 ® 3 ® | 503B025G01 503B025G02 503B027H01 809A263G01 503B027H08 | 3 R 3 R 6 R 12 R 6 R | 503B025G01 503B025G02 503B027H01 809A263G01 503B027H08 |
| Following are included in Lower Stud Assembly: | | | | | | | | |
| Moving Arcing Contact Moving Main Contact Insulating Link Assembly | 4 4 4 | 8 9 10 | 3 ® 6 ® 3 | 591C651G02 591C651G01 788A588G01 | 3 ® 6 ® 3 | 591C651G02 591C651G01 788A588G01 | 3 ® 12 ® 3 | 591C651G02 591C651G01 788A588G03 |
| Main Disconnecting Contact Assembly (not included in Pole Unit Assembly) | 3 | _ | 6 | 591C655G02 | 6 | 591C655G02 | 6 | 591C655G03 |

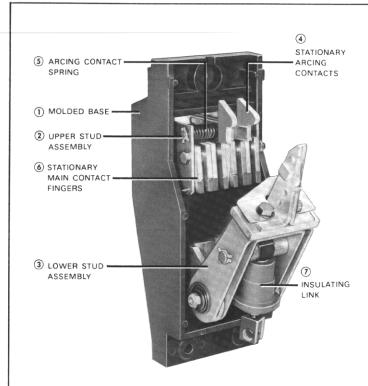
[®] Recommended Spare-See page 2.

⁽¹⁾ See page 16 figure 32 for illustration of the DSL-206.

⁽²⁾ The DS-206S pole unit is not illustrated. The DS-206S pole unit assembly is similar to the DS-416 with the upper and lower stud assemblies mounted on a separate molded base for each pole rather than a common base for the three poles.

Type DS-416, DSL-416, DS-416S and DS-420 Pole Unit

DS-416 Pole Unit is illustrated. DS-416S and DS-420 Pole Unit Assemblies are similar





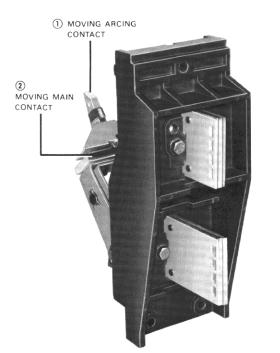


Fig. 6
Type DS-416 Pole Unit Assembly—Rear View

| | | | | DS-416 | | DSL-416 ⁽¹⁾ | | DS-416S and DS-420 | | |
|---|------------------|------------------|-----------------------------------|--|---------------------------------------|--|---------------------------------------|--|--|--|
| Description | Fig. | Item No. | No. Req. Per Bkr. | Style Number | No. Req. Per Bkr. | Style Number | No. Req. Per Bkr. | Style Number | | |
| Single Pole Unit Assembly Complete | 5-6 | _ | 3 | 151D064G01 | 3 | 151D065G01 | 3 | 151D065G02 | | |
| Following are included in Single Pole Unit Assembly: | | | | | | | | | | |
| Molded Base Upper Stud Assembly Lower Stud Assembly | 5 5 5 | 1 2 3 | 3 3 3 | 553F204H01 591C750G02 126D298G06 | 3 3 ® 3 | 553F204H01 139D635G01 139D633G04 | 3 3 ® 3 ® | 553F204H01 139D635G02 139D633G05 | | |
| Following are included in Upper Stud Assembly: | | | | | | | | | | |
| Stationary Arcing Contact—R.H. Stationary Arcing Contact—L.H. Stationary Arcing Contact Spring Stationary Main Contact Finger Stationary Main Contact Spring— Outer Stationary Main Contact Spring— Inner | 5 5 5 5 | 4 4 5 6 | 3 ® 3 ® 6 ® 24 ® 12 ® | 503B025G01 503B025G02 503B027H01 809A263G01 503B027H05 | 3 ® 3 ® 6 ® 36 (2) 12 (2) | 503B025G01 503B025G02 503B027H01 809A263G01 503B027H05 | 3 ® 3 ® 6 ® 36 (2) 12 (2) | 503B025G01 503B025G02 503B027H01 809A263G01 503B027H05 | | |
| Following are included in Lower Stud Assembly: | | | | | | | | | | |
| Moving Arcing Contact Moving Main Contact Insulating Link Assembly | 6 6 5 | 1 2 7 | 3 ® 3 ® 3 | 503B022G01 665A321G01 436B450G02 | 3 ® 3 ® 3 | 503B022G01 795A769G01 436B450G02 | 3 ® 3 (3) 3 | 503B022G01 795A769G01 436B450G02 | | |
| Main Disconnecting Contact Assembly (not included in Pole Unit Assembly) | 3 | _ | 6 | 682C347G01 | 6 | 682C347G01 | 6 | 590C804G01 | | |

[®] Recommended Spare—See page 2.

⁽¹⁾ See page 16 figure 33 for illustration of the DSL-416.

⁽²⁾ Assembly of the stationary main contact fingers and inner and outer springs is difficult. The Upper Stud Assembly is recommended for the DSL-416, DS-416S and DS-420.

⁽³⁾ Changing the moving main contact is complicated because of a drilling and pinning operation. The Lower Stud Assembly is recommended for the DS-416S and DS-420.

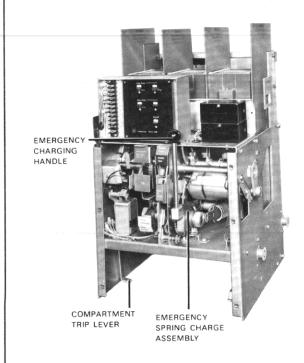


Fig. 7 DS-632 Breaker with Front Panel Removed

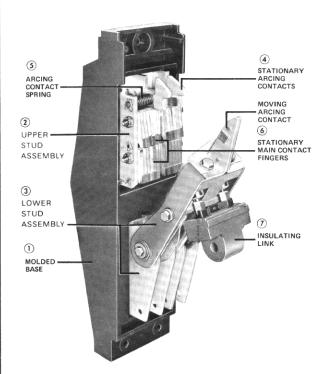


Fig. 8 Type DS-632 Pole Unit Assembly—Front View

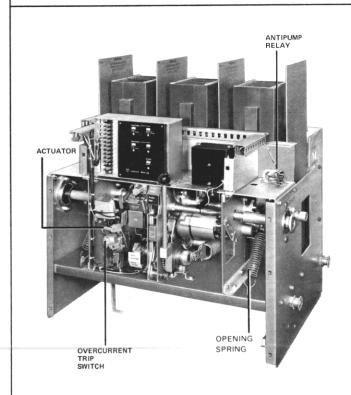


Fig. 10 DS-840 Breaker with Front Panel Removed

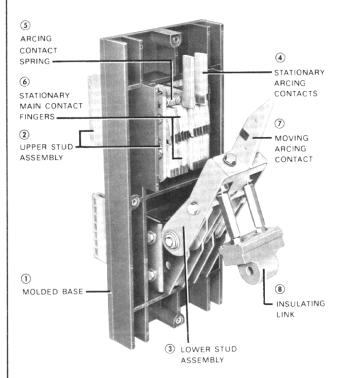


Fig. 11 Type DS-840 Pole Unit Assembly—Front View

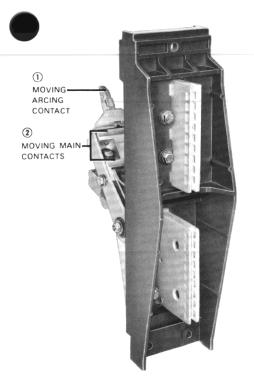


Fig. 9 Type DS-632 Pole Unit Assembly—Rear View

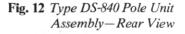
MAIN CONTACT

Type DS-632 Pole Unit

| | 1 | Ι | Number | |
|--|-------------|-------------|-------------------|--|
| | Figure | Item | Required | |
| Description | Number | No. | Per Bkr | Style Number |
| Single Pole Unit Assembly Complete | 8-9 | _ | 3 | 567F962G01 |
| Following are included in Single Pole Unit Assembly: | | | | |
| Molded Base | 8 | 1 | 3 | 553F205H01 |
| Upper Stud Assembly Lower Stud Assembly | 8 8 | 2 3 | 3 ® 3 ® | 126D299G02 140D091G05 |
| Following are included in Upper Stud Assembly: | | | | 1402001000 |
| Stationary Arcing Contact—R.H. | 8 | 4 | 3 ® | 588C736G01 |
| Stationary Arcing Contact—L.H. | 8 | 4 | 3 ® | 588C736G02 |
| Stationary Arcing | 8 | 5 | 6 ® | 503B027H01 |
| Contact Spring Stationary Main Contact Finger | 8 | 6 | 72 (1) | 809A263G01 |
| Stationary Main Contact | | | 24 (1) | 503B027H05 |
| Spring—Outer Stationary Main Contact Spring—Inner | | | 24 (1) | 503B027H10 |
| Following are included in Lower Stud Assembly: | | | | |
| Moving Arcing Contact Moving Main Contact Insulating Link Assembly | 9 9 8 | 1 2 7 | 3 ® 3 (2) 3 | 588C735G01 794A105G01 680C792G03 |
| Main Disconnecting Contact Assembly (not included in Pole Unit assembly) | 3 | _ | 6 | 682C347G02 |



| | Figure | Item | Number Required | |
|--|----------------|-------------|--------------------|--|
| Description | Number | No. | Per Bkr. | Style Number |
| Single Pole Unit Assembly Complete | 11-12 | _ | 3 | 567F991G03 |
| Following are included in Single Pole Unit Assembly: | | | | |
| Molded Base | 11 | 1 | 3 | 567F501G01 |
| Upper Stud Assembly Lower Stud Assembly | 11 | 2 3 | 3 ® 3 ® | 140D779G01 140D778G01 |
| Following are included in Upper Stud Assembly: | | | 3 19 | 1400770001 |
| Stationary Arcing Contact—R.H. | 11 | 4 | 3 ® | 588C736G01 |
| Stationary Arcing Contact—L.H. | 11 | 4 | 3 ® | 588C736G02 |
| Stationary Arcing Contact Spring | 11 | 5 | 6 ® | 503B027H01 |
| Stationary Main Contact Finger | 11 | 6 | 72 (1) | 809A263G01 |
| Stationary Main Contact Spring—Outer | | | 24(1) | 503B027H05 |
| Stationary Main Contact Spring—Inner | | | 24(1) | 503B027H10 |
| Following are included in Lower Stud Assembly: | | | | |
| Moving Arcing Contact Moving Main Contact Insulating Link Assembly | 11 12 11 | 7 — 8 | 3 ® 3 (2) 3 | 588C735G01 794A105G01 680C792G04 |
| Main Disconnecting Contact Assembly (not included in Pole Unit assembly). | 3 | _ | 12 | 591C100G01 |



[®] Recommended Spare - See page 2.

⁽¹⁾ Assembly of the stationary main contact fingers and inner and outer springs is difficult. The Upper Stud Assembly is recommended.

⁽²⁾ Assembly of the moving main contact is difficult. The Lower Stud Assembly is recommended.

Arc Chutes and Barriers

Fig. 15 DS-206S, DS-416

DS-416S, DS-420

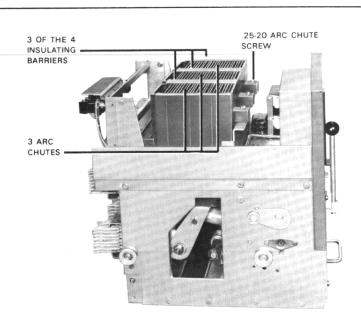


Fig. 13 Breaker with Barrier Removed to Show Mounting of Arc Chutes



Fig. 16 DS-632 Arc Chute

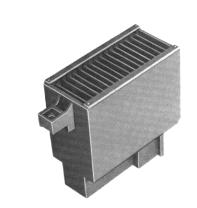


Fig. 14 DS-206 Arc Chute



Fig. 17 DS-840 Arc Chute

| Ā | Arc Chute | | | | | | |
|---|--|-----------------------------------|--------------|-----------------------------------|----------------|-----------------------------------|--------------|
| | Assembled Arc Chute and Mounting Screw | | | Removable Fig. 13 | Insulating Bar | riers — | |
| | | | | 0 | uter | Ir | nner |
| Breaker Type | Figure Number | Number Required Per Breaker | Style Number | Number Required Per Breaker | Style Number | Number Required Per Breaker | Style Number |
| DS-206 DSL-206 | 14 | 3 | 449D508G01 | 2 | 349A578H01 | 2 | 788A586H01 |
| DS-206S DS-416 DSL-416 DS-416S DS-420 | 15 | 3 | 151D018G01 | 2 | 349A578H01 | 2 | 349A578H01 |
| DS-632 | 16 | 3 | 151D018G02 | 2 | 436B108H02 | 2 | 436B108H01 |
| DS-840 | 17 | 3 | 140D164G01 | 2 | 803A735H01 | 2 | 803A735H01 |

Levering Mechanism

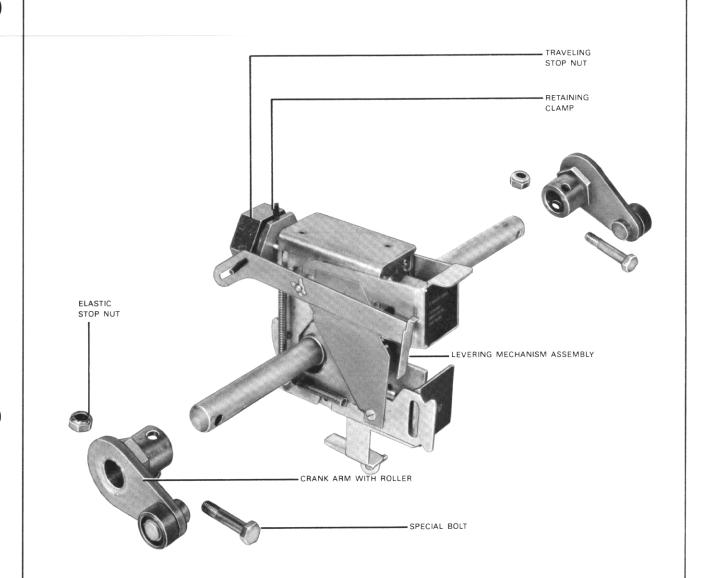


Fig. 18 Levering Mechanism

Levering Mechanism — Fig. 18

| | | All Type DS/DSL except DS-840 | DS-840 |
|--|-----------------------------------|----------------------------------|----------------|
| Description | Number Required per Breaker | Style Number | Style Number |
| Levering Mechanism Assembly | 1 | 449D224G04 | 449D224G05 |
| Following are included in Assembly: | - | | |
| Traveling Stop Nut | 1 | 791A674H01 | 791A674H01 |
| Retaining Clamp | 1 | 791A679H01 | 791A679H01 |
| Following are not included in Assembly: | | | |
| Crank Arm with Roller | 2 | 786A586G01 | 567F993G02 |
| Special Bolt | 2 (1) | 794A024H01 | 794A024H01 (1) |
| Elastic Stop Nut | 2 (1) | 70220ERN18 | 70220ERN18 (1) |

(1) For DS-840 four are required per breaker.

Mechanism and Related Parts

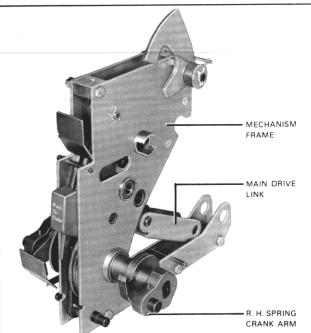


Fig. 19 Front View of Mechanism (Manual Spring Charge)

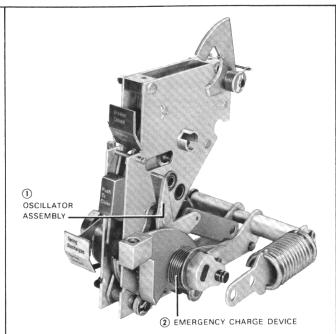


Fig. 20 Front View of Mechanism (Power-Operated Spring Charge)

All DS/DSL except DS-632 and DS-840

| | | | Power (| Operated | | Manual | Operated |
|---|-----------------------------------|-------------|-------------|---------------|-------------|-------------|--------------------------|
| Description | Number Required per Breaker | Fig. No. | Item No. | Style Number | Fig. No. | Item No. | Style Number |
| Mechanism Assembly (Without Closing Spring) | 1 | 20 | _ | 567F759G02 | 19 | _ | 567F759G01 |
| Following are included in Mechanism Assembly: | | | | | | | |
| Main Drive Link Ass'y. (With Roller) | 1 | 21 | 1-2 | 437B146G03 | 21 | 1-2 | 437B146G03 |
| Oscillator Ass'y. | 1 | 20 | 1 | 436B923G01 | | | * |
| Oscillator Reset Spring (Not Illustrated) | 1 | _ | _ | ® 503B601H11 | | | • |
| Emergency Charge Device | 1 | 20 | 2 | 436B925G01 | | | • |
| Spring Release Latch (With Bearings) | 1 | 22 | 1 | 795A855G01 | 22 | 1 | 795A855G01 |
| Trip Latch | 1 | 22 | 2 | 3755A19G01 | 22 | 2 | 3755A19G01 |
| Lever (for motor cut- off switch) | 1 | 22 | 3 | 791A516H01 | 22 | 3 | 791A516H01 |
| Trip Latch Reset Spring | 1 | 22 | 4 | ® 795A077H01 | 22 | 4 | ® 795A077H01 |
| Following are not included in Mechanism Assembly: | | | | | | | |
| Manual Charge Ass'y. (Without Handle) | 1 | | | • | 23 | 8 | 591C385G01 |
| Manual Charge Handle | 1 | | | | 23 | 9 | 349A669G02 |
| Emergency Charge Handle | 1 | 2 | - | 349A669G04 | | | * |
| Trip Shaft | 1 | 23 | 2 | 788A502H01 | 23 23 | 2 | 788A502H01 437B381H01 |
| Trip Shaft Lever | 1 | 23 | 3 | 437B381H01 | 23 | 3 4 | ® 436B621H05 |
| Trip Shaft Return Spring | 1 | 23 | 4 | ® 436B621H05 | 23 | 4 | ® 503B601H04 |
| Opening Spring | 1 | 2 23 | 10 | ® 503B601H04 | | _ | (|
| Motor, incl. Crank & Connectors | 1 | | | ® See Page 12 | | | |
| Closing Spring Ass'y. | 2 | 21 | 3-4 | | 21 | 3-4 | |
| DS-206 | | | | 349A521G01 | | | 349A521G01 |
| DS-206S DS-416 | | | | 791A671G02 | | | 791A671G02 |
| DS-416S DS-420 | | | | 791A671G01 | | | 791A671G01 |

[®] Recommended Spare - See page 2. *Not Required

Mechanism and Related Parts

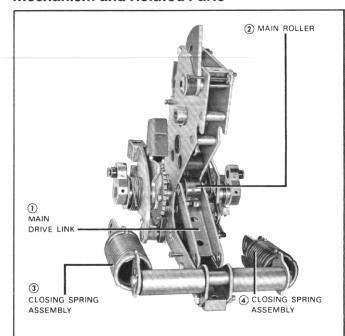


Fig. 21 Rear of Power-Operated Mechanism

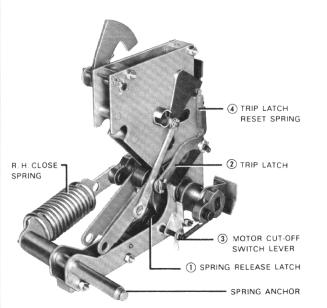


Fig. 22 Rear View of Power-Operated Mechanism (Left Close Spring Removed)

DS-632 and DS-840

| | * - | Power Operated | | | Manual Operated | | | |
|---|-----------------------------------|--------------------|-------------|----------------------------|--------------------|-------------|------------------------------|--|
| Description | Number Required per Breaker | (1) Fig. No. | Item No. | Style Number | (1) Fig. No. | Item No. | Style Number | |
| Mechanism Assembly (Without Closing Spring) | 1 | 20 | _ | 567F759G04 | 19 | _ | 567F759G07 | |
| Following are included in Mechanism Assembly: | | | | | | | | |
| Main Drive Link Ass'y. (With Roller) | 1 | 21 | 1-2 | 437B146G04 | 21 | 1-2 | 437B146G04 | |
| Oscillator Ass'y. | 1 | 20 | 1 | 436B923G01 | | | • | |
| Oscillator Reset Spring (Not Illustrated) | 1 | | _ | ® 503B601H11 | | | • | |
| Emergency Charge Device | 1 | 20 | 2 | 436B925G01 | | | * | |
| Spring Release Latch (With Bearings) | 1 | 22 | 1 | 795A855G01 | 22 | 1 | 795A855G01 | |
| Trip Latch | 1 | 22 | 2 | 3755A19G01 | 22 | 2 | 3755A19G0 | |
| Lever (for motor cut- off switch) | 1 | 22 | 3 | 791A516H01 | 22 | 3 | 791A516H01 | |
| Trip Latch Reset Spring | 1 | 22 | 4 | ® 795A077H01 | 22 | 4 | ® 795A077H01 | |
| Following are not included in Mechanism Assembly: | | | | | | | | |
| Manual Charge Ass'y. (Without Handle) | 1 | | | • | 23 | 8 | 591C385G01 | |
| Manual Charge Handle | 1 | | | • | 23 | 9 | 349A669G02 | |
| Emergency Charge Handle | 1 | 7 | _ | 349A669G04 | | | * | |
| Trip Shaft | 1 | 23 | 2 | 788A502H01 | 23 | 2 | 788A502H0 | |
| Trip Shaft Lever | 1 | 23 | 3 | 437B381H01 | 23 | 3 | 437B381H01 | |
| Trip Shaft Return Spring | 1 (0) | 23 | 4 | ® 436B621H05 | 23 8 | 4 | ® 436B621H09 ® 503B601H04 | |
| Opening Spring | 1 (2) | 8 23 | 10 | ® 503B601H04 ® See Page 12 | 8 | _ | ® 503B601H02 | |
| Motor, incl. Crank & Connectors | ' | | | | | | | |
| Closing Spring Ass'y. | 2 | 21 | 3-4 | 791A671G03 | 21 | 3-4 | 791A671G03 | |
| | | | | | | | | |

[®] Recommended Spare - See page 2.

^{*}Not Required.

⁽¹⁾ Figures 19 thru 22 illustrate mechanism for all DS/DSL breakers except DS-632 and DS-840. DS-632 and DS-840 mechanisms are similar.

⁽²⁾ Two opening springs are required for DS-840.

Mechanism and Related Parts

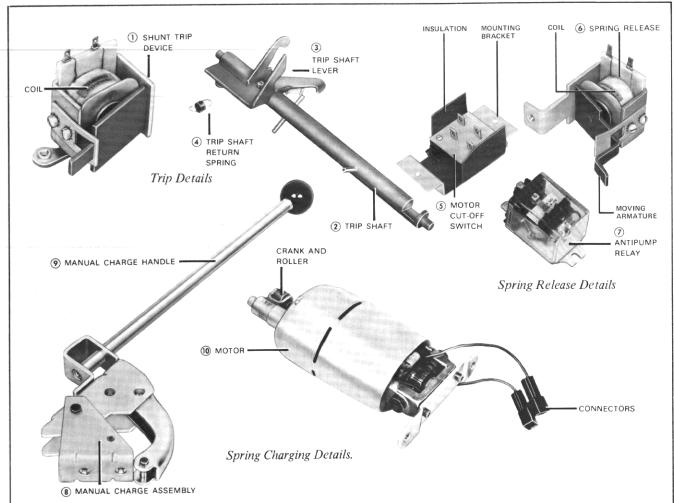


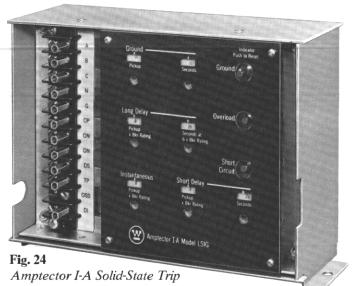
Fig. 23 Trip, Spring Release, and Spring Charging Details

| | Shunt Trip (1) Fig. No. 23 Iter | m No. 1 | Spring Release Fig. No. 23 Iter | | | |
|--------------------------------|------------------------------------|----------------|------------------------------------|----------------|---|--|
| | Complete Assembly | | Complete Assembly | | | |
| Voltage | DS/DSL except DS-840 (2) | Coil ® Only | DS/DSL except DS-840 (3) | Coil ® Only | ® Anti- Pump Relay Fig. No. 23 Item No. 7 | ® Motor Kit (4) Fig. No. 23 Item No. 10 |
| 24 DC | 3752A02G01 | 151D786G01 | _ | _ | _ | _ |
| 32 DC | 3752A02G02 | 151D786G03 | _ | _ | _ | _ |
| 48 DC | 3752A02G03 | 151D786G04 | 3752A03G01 | 151D786G04 | 140D930H03 | 449D431G03 |
| 125 DC | 3752A02G04 | 151D786G08 | 3752A03G02 | 151D786G08 | 140D930H04 | 449D431G01 |
| 250 DC | 3752A02G05 | 151D786G11 | 3752A03G03 | 151D786G11 | 140D930G05 | 449D431G02 |
| 120 60 HZ | 3752A02G06 | 151D786G04 | 3752A03G04 | 151D786G02 | 140D930H01 | 449D431G01 |
| 240 60 HZ | 3752A02G07 | 151D786G08 | 3752A03G05 | 151D786G05 | 140D930H02 | 449D431G02 |
| For Use with Capacitor Trip | 3752A02G08 | 151D786G08 | _ | _ | _ | _ |

 $\hbox{\it \$Motor Cut-off Switch-All breakers-Style 450D818G02 Fig. 23-Item 5. } \\$

- ® Recommended Spare See page 2.
- (1) Shunt Trip and Spring Release complete assembly includes mounting hardware and wire leads for field replacement. When adding shunt trip or spring release to manual breakers, an auxiliary switch, secondary contacts, and possibly other components will be required.
- (2) For DS-840 use corresponding groups of 3752A22.
- (3) For DS-840 use corresponding groups of 3752A23.
- (4) Motor Kit includes crank and roller and connectors for field replacement.

Type DS Circuit Breaker Automatic Tripping System



Amptector I-A can be supplied in various combinations of four independent continuously adjustable overcurrent tripping functions:

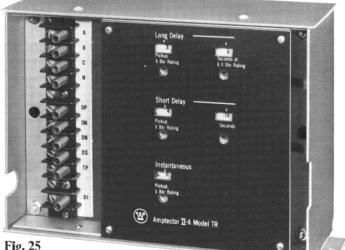
Long delay (L), Short delay (S), Instantaneous (I), Ground (G)

The following combinations are available:

LI, LIG, LS, LSG, LSI, LSIG

| Model | Style Number -60 HZ |
|-------|------------------------|
| LI | 6998D02G01 |
| LIG | 6998D02G02 (1) |
| LS | 6998D02G03 |
| LSG | 6998D02G04 (1) |
| LSIG | 6998D02G05 (1) |
| LSI | 6998D02G06 |

(1) For DS-632 and DS-840 use Groups 62, 64, 65 and 82, 84, 85 respectively.



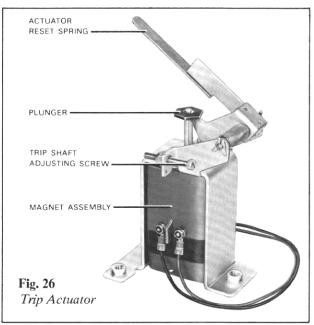
Amptector II-A Solid-State Trip

Amptector II-A can be supplied in three models or combinations of three independent continuously adjustable overcurrent tripping functions: long delay, short delay and instantaneous. These models are:

DU(Dual—Long delay and instantaneous

SE(Selective)—Long delay and short delay TR(Triple)—Long delay, short delay and instantaneous

| Model | Style Number -60 HZ |
|-------|------------------------|
| DU | 6997D20G41 |
| SE | 6997D20G42 |
| TR | 6997D20G43 |



DIRECT TRIP ACTUATOR FIGURE NO. 26

All type DS Breakers use Style Number 592C114G03 (with Black Magnet Ass'y)

Exception: If a breaker is equipped with an earlier Amptector II Style 151D792G series, use actuator style 592C114G01 (with Red Magnet Ass'y).

SENSORS

See Figure 3 for Typical Sensors

Refer to I.B. 33-790-1E, Table 4, for application of sensors.

| Sensor Rating Amperes | Sensor Style Number |
|-----------------------------|---------------------------|
| 50 | 794A170G01 |
| 100 | 151D995G01 |
| 150 | 151D995G15 |
| 200 | 151D995G02 |
| 300 | 151D995G03 |
| 400 | 151D995G04 |
| 600 | 151D995G06 |
| 800 | 151D995G08 |
| 1200 | 151D995G12 |
| 1600 | 151D995G16 |
| 2000 | 151D995G20 |
| 2400 | 151D995G24 |
| 3200 | 151D995G32 |
| 4000 | 588C734G01 |

NOTE:

For information on application and operation of the automatic tripping system refer to Section 8 of Instruction Book 33-790-1E.

Optional Accessories

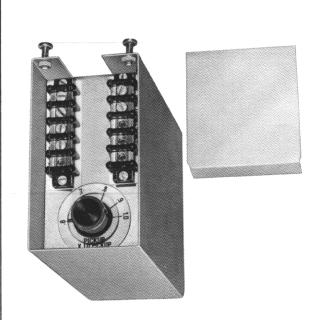


Fig. 27 High Load Switch—Style 151D006G04



Fig. 28 Latch Check Switch—Style 140D161G01

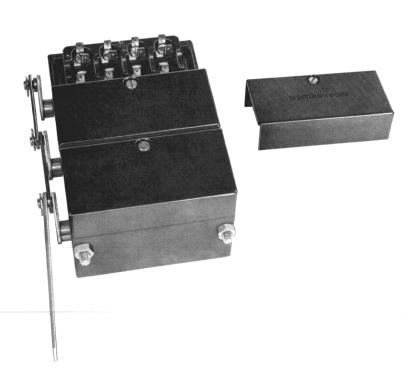


Fig. 29 Auxiliary Switches—See page 3 for identification of auxiliary switches.

Optional Accessories

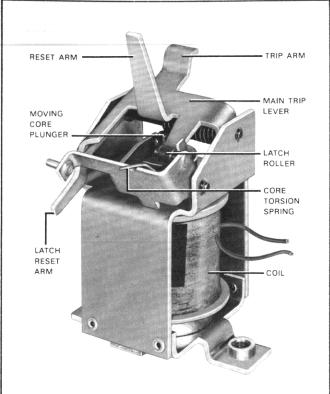


Fig. 30 Underwattage Trip Device

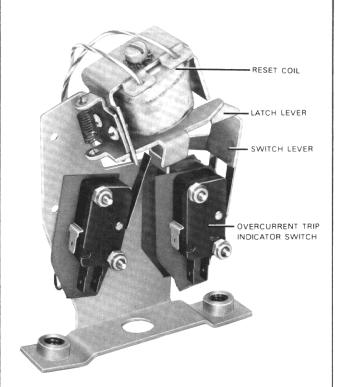


Fig. 31 Overcurrent Trip Switch

UNDERVOLTAGE TRIP DEVICE-FIGURE NO. 30

| | Undervoltage- Instantaneous | Undervoltage- Time Delay |
|-----------|---------------------------------|---------------------------------|
| Voltage | All DS/DSL Except DS-840 (1) | All DS/DSL Except DS-840 (2) |
| 120 60 HZ | 3752A05G01 | 3752A06G01 |
| 208 60 HZ | 3752A05G02 | 3752A06G02 |
| 240 60 HZ | 3752A05G03 | 3752A06G03 |
| 460 60 HZ | 3752A05G04 | 3752A06G04 |
| 48 DC | 3752A05G05 | 3752A06G05 |
| 125 DC | 3752A05G06 | 3752A06G06 |
| 250 DC | 3752A05G07 | 3752A06G07 |

(1) For DS-840 use corresponding groups of 3752A25

(2) For DS-840 use corresponding groups of 3752A26

| Special Voltage | All DS/DSL including DS-840 | All DS/DSL including DS-840 |
|------------------------------|-----------------------------|-----------------------------|
| 24 DC | 3752A45G01 | 3752A46G01 |
| 115 50 HZ | 3752A45G02 | 3752A46G02 |
| 208 50 HZ | 3752A45G03 | 3752A46G03 |
| 230 50 HZ | 3752A45G04 | 3752A46G04 |
| 400 415 ^{/50} HZ | 3752A45G05 | 3752A46G05 |
| 460 50 HZ | 3752A45G06 | 3752A46G06 |

NOTES
All styles include mounting hardware and wire leads for field replacement.
When adding to existing breakers, secondary contacts will be required.

The undervoltage trip device is available as a complete assembly. The coil only is not recommended as it is riveted into the assembly.

OVERCURRENT TRIP SWITCH-FIGURE NO. 31

For all type DS/DSL except DS-840 (1).

| | | | Manual Reset | | | |
|------------------|--|--|---|--|--|--|
| Contact | 3 Contact | | 4 Contact | | | |
| 52A04G01 | 3752A04 | G02 | 3752A04G03 | | | |
| Electrical Reset | | | | | | |
| 2 Contact | | 3 Contact | | | | |
| 3752A04G04 | | 3 | 752A04G09 | | | |
| 3752A04G05 | | 3 | 752A04G10 | | | |
| 3752A04G06 | | 3 | 752A04G11 | | | |
| 3752A04G07 | | 3 | 752A04G12 | | | |
| 3752A | 04G08 | 3 | 752A04G13 | | | |
| | 252A04G01 set 2 Coi 3752Ai 3752Ai 3752Ai 3752Ai 3752Ai | 252A04G01 3752A04 set 2 Contact 3752A04G04 3752A04G05 3752A04G06 | 252A04G01 3752A04G02 set 2 Contact 3752A04G04 3 3752A04G05 3 3752A04G06 3 3752A04G07 3 | | | |

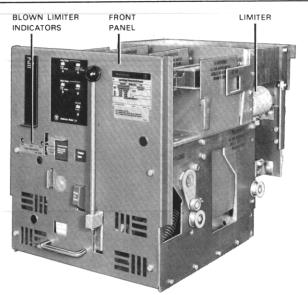
(1) For DS-840 use corresponding groups of 3752A24.

All styles include mounting hardware and wire leads for field replacement. When adding to existing breakers other components may be needed.

For replacement of switches only order style 6898D52A01 which consists of two switches, a switch bracket and rivets.

DSL-206 and DSL-416 Breakers

Parts for pole units, arc chutes, mechanisms, etc. for DSL breakers are identified on preceeding pages of this R.P.D.



| Description | Fig. No. | Number Required per Breaker | DSL-206 and DSL-416 Style Number |
|--|-------------|-----------------------------------|--|
| Blown Limiter Indicator Ass'y. | 32 | 1 | 140D777G01 |
| Isolating Transformer Ass'y. (includes 3 transformers) | 33 | 1 | 591C755G01 |
| Transformer Only: | 33 | 3 | 795A823H01 |

Fig. 32 DSL-206 Breaker—Front View

ISOLATING TRANSFORMERS ISOLATING TRANSFORMERS LIMITER

Fig. 33 DSL-416 Breaker — Side View

® LIMITERS-FIGURES 32-33

Refer to I.B. 33-790-1E, Table 5, for application of limiters.

| Breaker Type | Number Required per Breaker | Rating Amps | Style Number |
|-----------------|-----------------------------------|----------------|--------------|
| | 3 | 150 | 140D316G01 |
| | 3 | 200 | 140D316G02 |
| | 3 | 250 | 140D316G03 |
| | 3 | 300 | 140D316G04 |
| DCI 200 | 3 | 400 | 140D316G05 |
| DSL-206 | 3 | 600 | 140D316G06 |
| | 3 | 800 | 140D316G07 |
| | 3 | 1200 | 140D316G10 |
| | 3 | 1600 | 140D316G11 |
| | 3 | 2000 | 140D316G12 |
| DSL-416 | 3 | 800 | 151D932G01 |
| | 3 | 1000 | 151D932G02 |
| | 3 | 1200 | 151D932G03 |
| | 3 | 1600 | 151D932G04 |
| | 3 | 2000 | 151D932G05 |
| | 3 | 2500 | 151D932G09 |
| | 3 | 3000 | 151D932G10 |

® Recommend 3 spare limiters of each current rating.



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