

**ALTRONIC V
SMALL ENGINES, 1-6 CYLINDERS**

**APPLICATION LIST
FORM AV AL 2-95**

REQUIRED ITEMS:

- A) ALTRONIC V UNIT - See listing and Identification section.
 * Single Firing Unit fires each cylinder individually on the compression stroke only.
 ** Double Firing Unit fires on exhaust stroke as well as the compression stroke.
- B) WIRING HARNESS - See listing and Identification section.
- C) IGNITION COILS - unshielded, 1 per spark plug:
 501 061 - standard
 591 010 - long duration

OPTIONAL ITEMS:

- D) ELECTRONIC TIMING - See Application Options.
- E) SHIELDED SYSTEM - See Application Options.
- F) ALTRONIC DIGITAL INSTRUMENTS - Annunciator, Tachometer, Hourmeter, Overspeed Trip, Timing Indicator, Pyrometer, Temperature and Pressure Switch & Gauge - see form ADI-C.
- G) MURPHY PANEL/FUEL VALVE ADAPTOR - 501 213.

| ENGINE / MODEL NO. | ALTRONIC 1/1-6 KIT AVAILABLE | ALTRONIC V SINGLE FIRING* UNIT NO. | HARNESS | ALTRONIC V DOUBLE FIRING** UNIT NO. | HARNESS | QTY. IGN. COILS | NOTES |
|------------------------|------------------------------------|--|-----------|---|---------|-----------------------|-------|
| AJAX | | | | | | | |
| 6-1/2 x 8, 7-1/4 x 8 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| 7-1/2 x 10, 8-1/2 x 10 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| E-15 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| EA-22 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| C-30, EA-30 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| C-42, E-42 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| DP-60, DPC-60 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| DP-70 | I | 1A28-A | 593 041-1 | -- | -- | 1 | |
| DP-80, DPC-80 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DPC-81 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DPC-105 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DP-115, DPC-115 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DPC-120 | I | 2A28H-A | 593 041-1 | -- | -- | 2 | |
| DP-125 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DPC-140 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DP-160, DPC-160 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |
| DPC-162 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |
| DP-165 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DPC-180 | I | 1A28H-A | 593 041-1 | -- | -- | 2 | |
| DP-230, DPC-230 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |
| DP-250 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |
| DPC-280 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |
| DPC-300 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |
| DP-325 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |
| DPC-360 | I | 2A28H-A | 593 041-1 | -- | -- | 4 | |

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|---------------------------|---|---|--|--------------------------------|--------------|
|---------------------------|---|---|--|--------------------------------|--------------|

ALLIS CHALMERS

| | | | | | |
|----------------------|----|------------------|------------------|---|--|
| 4-Cylinder (1:1) | -- | 4A24-A 393 023-1 | 2A14-A 593 041-1 | 4 | |
| 6-Cylinder (1-1/2:1) | -- | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |

ARIEL

| | | | | | |
|----------|----|--------------------|-------|---|--|
| 325JGS/1 | -- | 2A18H-GV 593 041-1 | -- -- | 4 | |
|----------|----|--------------------|-------|---|--|

ARROW SPECIALTY

| | | | | | |
|--------|---|-------------------|-------|---|--|
| C-245 | I | 2A25-A 593 041-1 | -- -- | 2 | |
| C-255 | I | 2A25-A 593 041-1 | -- -- | 2 | |
| L-795 | I | 2A28-GV 593 041-1 | -- -- | 2 | |
| L-1770 | I | 2A28-A 593 041-1 | -- -- | 2 | |
| L-2165 | I | 2A28-A 593 041-1 | -- -- | 2 | |

CATERPILLAR

| | | | | | |
|--------------------|-----|--------------------|------------------|---|----|
| G3304-NA (1:1) | I-6 | 4A24-A 393 023-1 | 2A14-A 593 041-1 | 4 | 12 |
| G3304-NA (1-1/2:1) | -- | 4A34-A 393 023-1 | -- -- | 4 | 12 |
| G3306-NA | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| G3306-TA | -- | 6A34-A 393 023-1 | -- -- | 6 | |
| G3406 | -- | 109-8912 393 023-1 | -- -- | 6 | 13 |

CONTINENTAL

| | | | | | |
|-------|-----|------------------|------------------|---|--|
| F-163 | I-6 | 4A24-A 393 023-1 | 2A14-A 593 041-1 | 4 | |
| F-226 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| F-227 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| F-245 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |

CONTINENTAL-EMSCO

| | | | | | |
|---------|---|------------------|-------|---|--|
| C-E 264 | I | 2A25-A 593 041-1 | -- -- | 2 | |
|---------|---|------------------|-------|---|--|

CUMMINS

| | | | | | |
|-------------------|-----|--------------------|-------------------|---|----|
| G-495 | I-6 | 4A24-D 393 023-1 | 2A14-D 593 041-1 | 4 | |
| G-743 (1:1) | I-6 | 6A24-D 393 023-1 | 3A14-D 593 041-1 | 6 | 11 |
| G-743 (1-1/2:1) | -- | 6A34-GVC 393 023-1 | 3A64-GV 593 041-1 | 6 | 11 |
| G-855 (1:1) | I-6 | 6A24-D 393 023-1 | 3A14-D 593 041-1 | 6 | 11 |
| G-855 (1-1/2:1) | -- | 6A34-GVC 393 023-1 | 3A64-GV 593 041-1 | 6 | 11 |
| GTA-743 (1:1) | -- | 6A24-D 393 023-1 | -- -- | 6 | |
| GTA-743 (1-1/2:1) | -- | 6A34-GVC 393 023-1 | -- -- | 6 | |
| GTA-855 (1:1) | -- | 6A24-D 393 023-1 | -- -- | 6 | |
| GTA-855 (1-1/2:1) | -- | 6A34-GVC 393 023-1 | -- -- | 6 | |

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|---------------------------|--------------------------------------|--|---|-----------------------|-------|
| DEUTZ | | | | | |
| GF2L912, GF2L913 | -- | 2A25-GV 593 041-1 | 2A14-GV 593 041-1 | 2 | |
| GF3L912, GF3L913 | -- | 3A25-GV 593 041-1 | 3A14-GV 593 041-1 | 3 | |
| GF4L912, GF4L913 | -- | 4A24-GV 393 023-1 | 2A14-GV 593 041-1 | 4 | |
| GF5L912, GF5L913 | -- | 5A24-GV 393 023-1 | -- -- | 5 | |
| GF6L912, GF6L913 | -- | 6A24-GV 393 023-1 | 3A14-GV 593 041-1 | 6 | |
| DORMAN | | | | | |
| 6LEG | -- | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| 6QG | -- | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| HERCULES (WHITE) | | | | | |
| G-2300 (1:1) | I-6 | 4A24-GVW 393 023-1 | 2A14-GVW 593 041-1 | 4 | 1 |
| G-2300 (1-1/2:1) | I-6 | 4A34-GVW 393 023-1 | 2A64-GVW 593 041-1 | 4 | 2 |
| G-3400 (1-1/2:1) | I-6 | 6A34-GVW 393 023-1 | 3A64-GVW 593 041-1 | 6 | 2 |
| G-4800 (1-1/2:1) | -- | 6A34-GVW 393 023-1 | 3A64-GVW 593 041-1 | 6 | |
| INTERNATIONAL | | | | | |
| 4-Cylinder (1:1) | -- | 4A24-A 393 023-1 | 2A14-A 593 041-1 | 4 | |
| 6-Cylinder (1-1/2:1) | -- | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| LUFKIN | | | | | |
| HC-333, HT-333 | I | 2A28-GV 593 041-1 | -- -- | 2 | |
| L-795 | I | 2A28-GV 593 041-1 | -- -- | 2 | |
| L-1770B | I | 2A28-A 593 041-1 | -- -- | 2 | |
| L-2165B | I | 2A28-A 593 041-1 | -- -- | 2 | |
| MINNEAPOLIS MOLINE | | | | | |
| 4-Cylinder (1:1) | I-6 | 4A24-A 393 023-1 | 2A14-A 593 041-1 | 4 | |
| 6-Cylinder (1-1/2:1) | I-6 | 6A34-AM 393 023-1 | 3A64-AM 593 041-1 | 6 | |
| OILWELL | | | | | |
| C-15RC | I | -- -- | 1A18-GV 593 041-1 | 1 | |
| C-19RC | I | -- -- | 1A18-GV 593 041-1 | 1 | |
| E-15RC | I | -- -- | 1A18-GV 593 041-1 | 1 | |
| E-20RC | I | -- -- | 1A18-GV 593 041-1 | 1 | |
| F-70RC | I | -- -- | 2A14-GV 593 041-1 | 2 | |
| F-90RC | I | -- -- | 2A14-GV 593 041-1 | 2 | |

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|--------------------|--------------------------------------|--|---|-----------------------|-------|
| WAUKESHA | | | | | |
| 135 | I-6 | 6A34-AW 393 023-1 | 3A64-AW 593 041-1 | 6 | 3 |
| 140 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| 145 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| 180 | -- | 4A24-A 393 023-1 | 2A14-A 593 041-1 | 4 | 9 |
| 190 | I-6 | 6A34-AW 393 023-1 | 3A64-AW 593 041-1 | 6 | 4 |
| 195 | I-6 | 6A34-AW 393 023-1 | 3A64-AW 593 041-1 | 6 | 4 |
| F11G, F11GSI | -- | 6A34-GV 393 023-1 | -- -- | 6 | 5 |
| F11G, F11GSI | -- | 6A34-GVW 393 023-1 | -- -- | 6 | 5 |
| F554GU | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| F817GU | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | |
| F1197GU | I-6 | 6A34-GV 393 023-1 | 3A64-GV 593 041-1 | 6 | 8 |
| F1905G | I-6 | 6A34-GV 393 023-1 | 3A64-GV 593 041-1 | 6 | 8 |
| VRG-220 | I-6 | 4A24-AW 393 023-1 | 2A14-AW 593 041-1 | 4 | 6 |
| VRG-232 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | 10 |
| VRG-265 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | 10 |
| VRG-283 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | 10 |
| VRG-310 | I-6 | 6A34-A 393 023-1 | 3A64-A 593 041-1 | 6 | 10 |
| VRG-330 | I-6 | 6A34-AW 393 023-1 | 3A64-AW 593 041-1 | 6 | 7 |
| VRG-330S | -- | 6A34-AW 393 023-1 | -- -- | 6 | 7 |

NOTES:

- 1 - Drive gear for Altronic V unit is White part no. 255446 which requires a 7/8" I.D. x 1/8" thick spacer washer.
- 2 - Drive gear for Altronic unit is White part no. 40-3076701.
- 3 - Drive gear for Altronic unit is Waukesha part no. 135119.
- 4 - Drive gear for Altronic unit is Waukesha part no. 195119.
- 5 - First production engines using attached Waukesha gear no. 355019 use unit 6A34-GVW. Later production engines using standard magneto drive use unit 6A34-GV.
- 6 - Drive gear for Altronic unit is Waukesha part no. 216019.
- 7 - Drive gear for Altronic unit is Waukesha part no. 217019.
- 8 - Adaptation to flange mounting is required; contact Rocky Mountain Ignition & Emission Controls, Inc.; 5829 Monaco St.; Commerce City, Colorado 80022.
- 9 - Installation requires Waukesha adaptor no. D151805; also requires various Waukesha parts to connect adaptor to the engine's oil system.
- 10 - Installation requires Waukesha adaptor no. AA199686; also requires various Waukesha parts to connect adaptor to the engine's oil system.
- 11 - The single firing system (6A unit) is recommended for new installations.
- 12 - Engines with S/N 37Y2112 and lower use unit 4A24-A; engines with S/N 37Y2113 and higher use unit 4A34-A.
- 13 - Unit 109-8912 is model 6A24-GV with special coupling 510 699 in place of standard coupling 510 454-U.

ELECTRONIC TIMING OPTION

- A) ALTRONIC V UNIT - Add "T" before the dash in the unit part number. Example: 6A34T-A.
- B) ELECTRONIC TIMING UNIT - Allows for two timing points to be set for dual-gas or dual-load applications.

| ALTRONIC V UNIT | TIMING UNIT |
|-----------------|-------------|
| 2A14T | 581 603-1 |
| 2A18HT | 581 603-1 |
| 2A25T | 581 603-1 |
| 2A28T, 2A28HT | 581 603-1 |
| 2A64T | 581 603-1 |
| 3A14T | 581 603-1 |
| 3A25T | 581 603-1 |
| 3A35T | 581 603-1 |
| 3A64T | 581 603-1 |

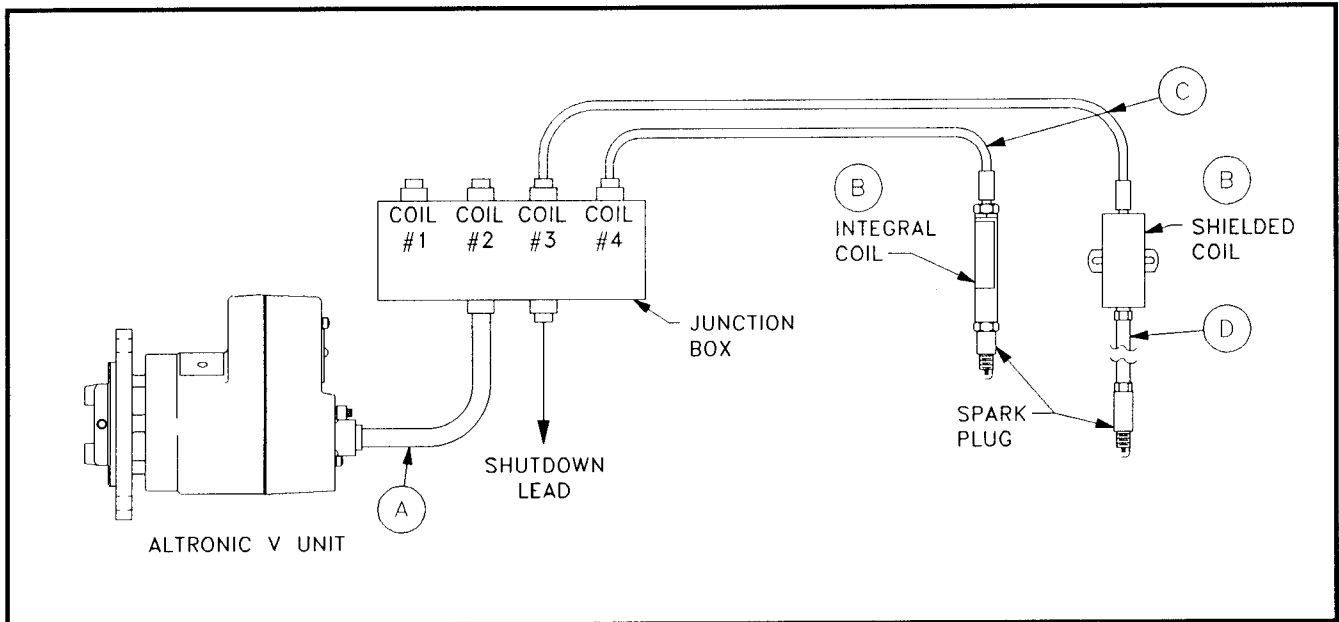
| ALTRONIC V UNIT | TIMING UNIT |
|-----------------|-------------|
| 4A24T | 581 603-2 |
| 4A34T | 581 603-2 |
| 5A24T | 581 603-2 |
| 6A24T | 581 603-2 |
| 6A34T | 581 603-2 |

- C) HARNESS - One per system:
 - 593 050 Harness, unshielded
 - 593 052-24 Harness, shielded
- D) SHORTING PLUG - To operate Altronic V as a standard, fixed timing unit:
 - 593 051 Shorting plug

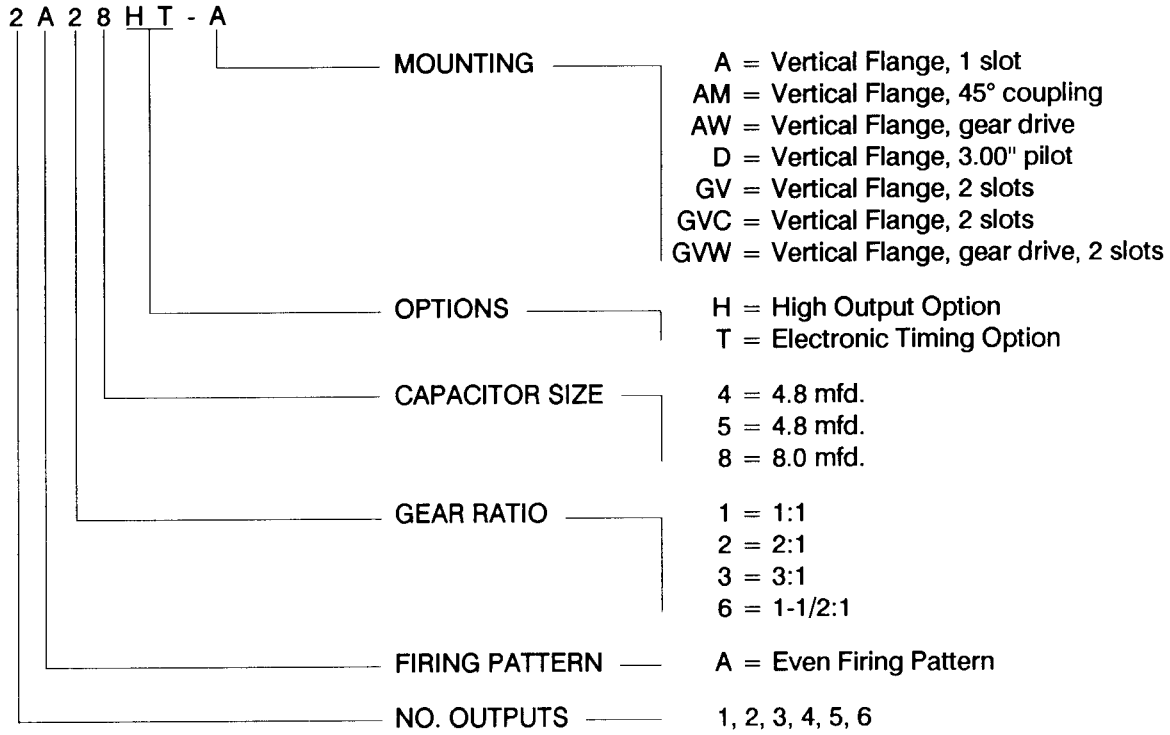
SHIELDED SYSTEM

- A) SHIELDED HARNESS - Altronic V unit to junction box:
593 044 series - 180° connector for models 1A, 2A, 3A
593 046 series - 90° connector for models 1A, 2A, 3A
393 013 series - 90° connector for models 4A, 5A, 6A
See Identification section for complete listing.
- B) IGNITION COILS - See Application Guide, form AIS AG:
501 061-S series - shielded coil, standard
591 010-S series - shielded coil, long duration
591 007 series - integral coil, 1"-20 male thread
591 011A series - integral coil, 13/16"-20 female thread
591 011B series - integral coil, 13/16"-20 female thread
- C) SHIELDED PRIMARY CABLE ASSEMBLIES - coil to junction box:
593 022 series - 180° connector
593 027 series - 90° connector
See Application Guide, form AIS AG, for available lengths.
- D) SHIELDED SPARK PLUG LEAD ASSEMBLIES (FOR 501 061-S, 591 010-S COIL):
593 020 - 10", 13", 16", 18"

NOTE: Components listed above are CSA Certified / FMR Approved for Class I, Group D, Division 2 locations.



ALTRONIC V UNIT PART NO. DESIGNATION





-A



-AM



-AW



-D



-GV, -GVC



-GW

BACK COVER LISTING

| UNIT | BACK COVER ASS'Y. |
|-------------|--------------------------|
| 1A18 | 581 401-1 |
| 1A28 | 581 401-2 |
| 1A28H | 581 401-2H |
| 2A14 | 581 404-1 |
| 2A18H | 581 402-2H |
| 2A25 | 581 404-3 |
| 2A28 | 581 402-1 |
| 2A28H | 581 402-1H |
| 2A64 | 581 404-2 |

| UNIT | BACK COVER ASS'Y. |
|-------------|--------------------------|
| 3A14 | 581 406-2 |
| 3A25 | 581 406-4 |
| 3A35 | 581 406-3 |
| 3A64 | 581 406-1 |
| 4A24 | 581 407-1 |
| 4A34 | 581 407-2 |
| 5A24 | 581 405-1 |
| 6A24 | 581 408-2 |
| 6A34 | 581 408-1 |

UNSHIELDED HARNESSSES

| PART NO. | CONNECTOR / PINS | CYLS. / L1* | APPLICATION | NOTES |
|-----------------|-------------------------|--------------------|--------------------|--------------|
| 393 023-1 | 180° / 7 | 4-6 / 72" | unshielded | b |
| 393 023-2 | 180° / 7 | 4-6 / 180" | unshielded | b |
| 593 041-1 | 180° / 5 | 1-6 / 72" | unshielded | b |
| 593 041-2 | 180° / 5 | 1-6 / 96" | unshielded | b |

SHIELDED HARNESSSES

| PART NO. | CONNECTOR / PINS | CYLS. / L1* / L2* | APPLICATION | NOTES |
|-----------------|-------------------------|--------------------------|--------------------|--------------|
| 393 013-1 | 90° / 7 | 4-6 / 72" / 48" | shielded | a |
| 393 013-2 | 90° / 7 | 4-6 / 180" / 48" | shielded | a |
| 593 044-12 | 180° / 5 | 1-6 / 72" / 12" | shielded | a |
| 593 044-18 | 180° / 5 | 1-6 / 72" / 18" | shielded | a |
| 593 044-24 | 180° / 5 | 1-6 / 72" / 24" | shielded | a |
| 593 046-12 | 90° / 5 | 1-6 / 72" / 12" | shielded | a |
| 593 046-18 | 90° / 5 | 1-6 / 72" / 18" | shielded | a |
| 593 046-24 | 90° / 5 | 1-6 / 72" / 24" | shielded | a |

NOTES:

- a) CSA Certified for Class I, Group D, Division 2 hazardous locations when used with applicable CSA Certified Altronic ignition unit and coils.
- b) All 180 degree connectors are potted type.

* L1 = length of 16 ga. conductor
L2 = length of conduit on shielded harnesses