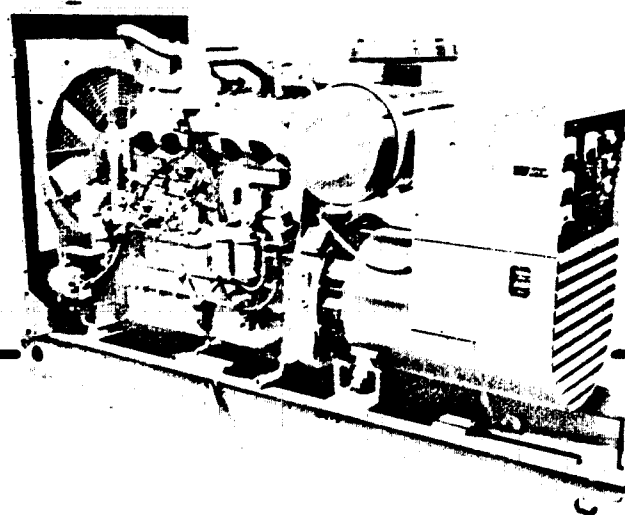


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has gaps in its page
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Parts Manual

DYD
GenSet



973-0223
SPEC F-M
Replaces
9-79 (Spec F-H)

11-80
Printed in U.S.A.

GENERAL INFORMATION

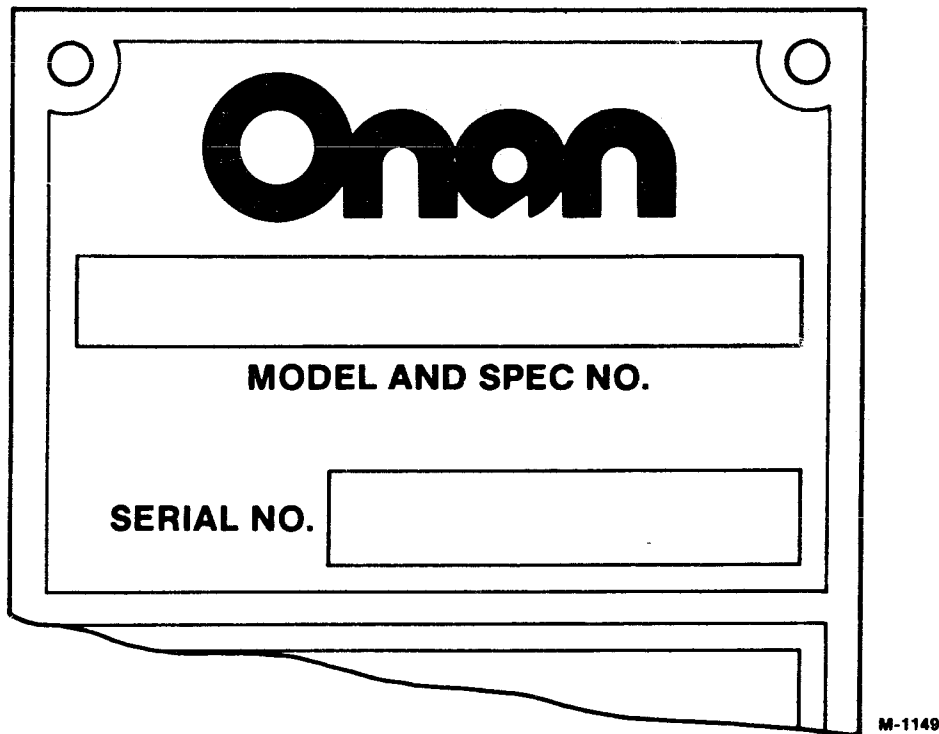
INSTRUCTIONS FOR ORDERING REPAIR PARTS

For parts or service, contact the dealer from whom you purchased this equipment or refer to your Nearest Authorized Onan Parts and Service Center.

To avoid errors or delay in filling your parts order, please furnish all information requested.

Always refer to the nameplate on your unit.

1. Always give the MODEL, SPEC NO. and SERIAL NO.



The diagram shows a rectangular nameplate with rounded corners and two circular mounting holes at the top. The Onan logo is prominently displayed at the top center. Below the logo is a large rectangular box labeled "MODEL AND SPEC NO.". At the bottom left, the text "SERIAL NO." is followed by a smaller rectangular box for the serial number. The nameplate is shown slightly overlapping another one behind it. The code "M-1149" is printed at the bottom right of the nameplate.

For handy reference, insert "YOUR" nameplate information in the spaces above.

2. Do not order by reference number; always use part number and description.
3. Give the part number, description and quantity needed of each item. If an older part cannot be identified, return the part prepaid to your dealer or nearest Onan Parts and Service Center. Print your name and address plainly on the package. Write a letter to the same address stating the reason for returning the part.
4. State definite shipping instructions. Any claim for loss or damage to your unit in transit should be filed promptly against the transportation company making the delivery. Shipments are complete unless the packing list indicates items are back ordered.

Prices are purposely omitted from this Parts Catalog due to the confusion resulting from fluctuating costs, import duties, sales taxes, exchange rates, etc.

For current parts prices, consult your Onan Dealer, Distributor or Parts and Service Center.

"En esta lista de partes los precios se omiten de proposito, ya que bastante confusion resulto de fluctuaciones de los precios, derechos aduanales, impuestos de venta, cambios extrajeros, etc."

Consiga los precios vigentes de su distribuidor de productos "ONAN."

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This parts catalog applies to the standard generator sets listed below. Any engine parts modified or added by Onan will be listed in this catalog and have been assigned Onan part numbers for identification. These modified or added parts supersede similar parts listed in the Engine Manufacturer's manuals. The illustrations are arranged in groups of related items, and each part or assembly is identified by a reference number. All parts illustrated are typical, and unless otherwise mentioned, parts are interchangeable. These typical illustrations are subject to change and reflect only the latest replacement parts arrangement. The Right and Left generator set sides are determined by facing the front end of the engine.

DATA TABLE

MODEL AND SPEC NO. £	ELECTRICAL DATA				
	WATTS	VOLTS	HERTZ	WIRE	PHASE
100.0 DYD-515R	100,000	‡	50	12	1 or 3
100 DYD-15R50	100,000	†	60	12	1 or 3
125.0 DYD-6DR/	125,000	240/480	60	7	3
125.0 DYD-7R/	125,000	220/380	60	12	3
125.0 DYD-9XR/	125,000	347/600	60	4	3
125.0 DYD-15R/	125,000	‡	60	12	1 or 3

£ - The Specification letter advances (A to B, B to C, etc) with manufacturing changes.

‡ - These sets are reconnectible, refer to Specifications (Generator Details) in Operator's Manual for Electrical Data.

NOTE: Hertz is a unit of frequency equal to one cycle per second.

NOTICE!

ITEMS REFERENCED AS **OPTIONAL** INDICATE PART IS FACTORY INSTALLED AND MAY NOT BE APPLICABLE TO ALL MODELS. FOR FIELD CONVERSIONS ADDITIONAL PARTS ARE USUALLY REQUIRED.

REPLACEMENT ENGINE

ONAN PART NO.

100-1419
100-1425

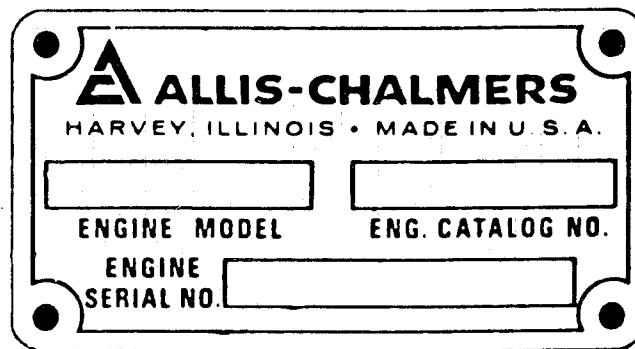
*Engine, Replacement

Standard 60 Hertz Sets
Standard 50 Hertz Sets

Includes: Complete Cylinder Block, Fuel Pump, Fuel Oil Filter, Air Cleaner, Governor, Fan Blades (pusher type), Flywheel, Water Pump, Oil Pan, Exhaust Manifold, Fan Belt and Fuel Shut-off Valve.

Excludes: Alternator, Alternator Mounting Brackets, Alternator Belt, Temperature Sender, Oil Pressure Sender, Starter and Radiator.

***NOTE:** This replacement engine is for Onan's Standard Spec 1 generator sets, for all other refer to the factory for replacement information.

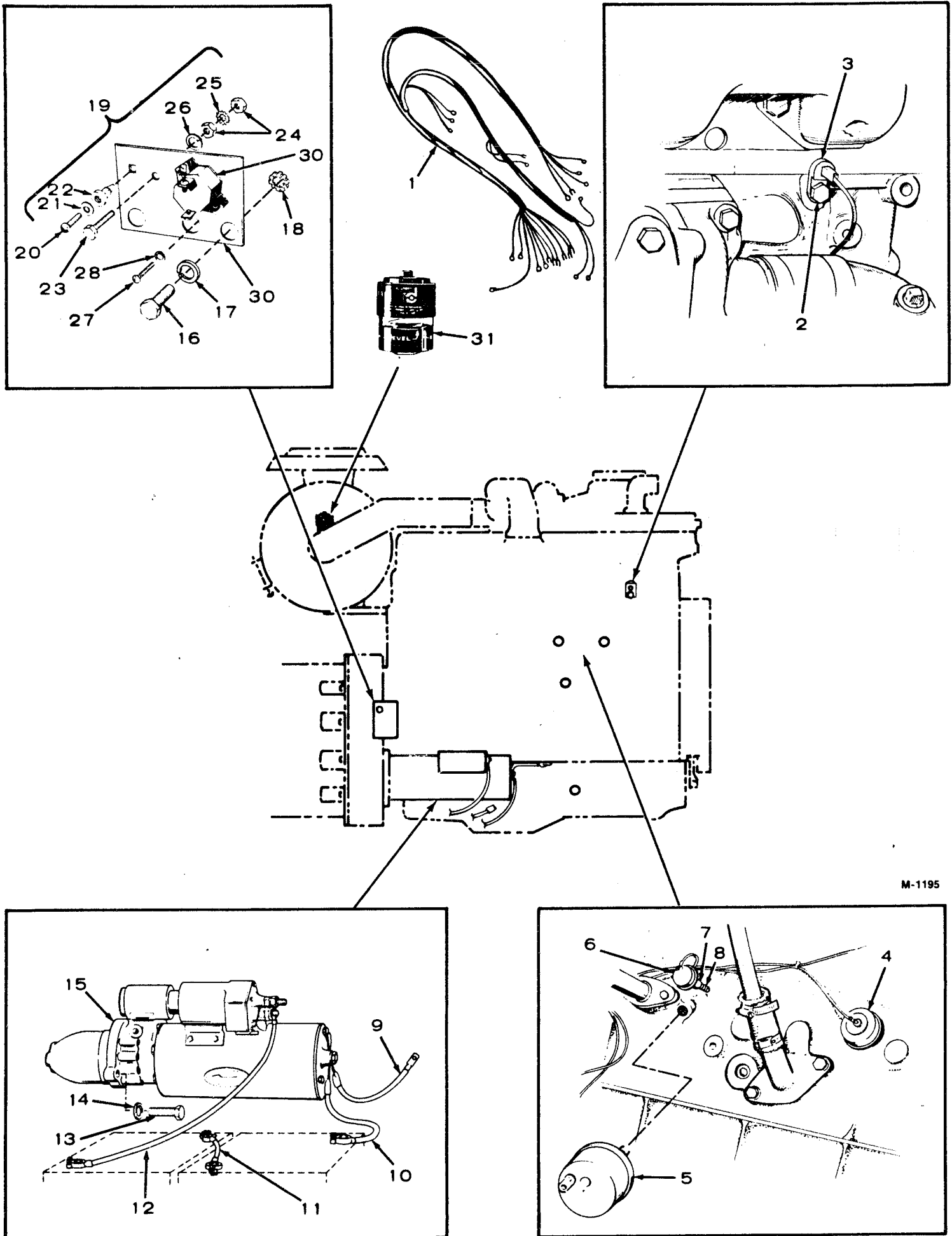


For handy reference, insert "YOUR" nameplate information in the spaces above.

ENGINE REPLACEMENT PARTS

All engine replacement parts must be ordered from the engine manufacturer, except those modified or added by Onan. When ordering engine parts, refer to the manufacturer's nameplate and supply the Model, Spec, Serial numbers and other available information. Refer to the engine manufacture's manuals for your nearest authorized distributor or parts center; or contact the Onan distributor from whom you purchased this set for assistance in ordering replacement parts.

MISCELLANEOUS ENGINE PARTS (LEFT SIDE)



M-1195

973-0223 (NOVEMBER 1980)

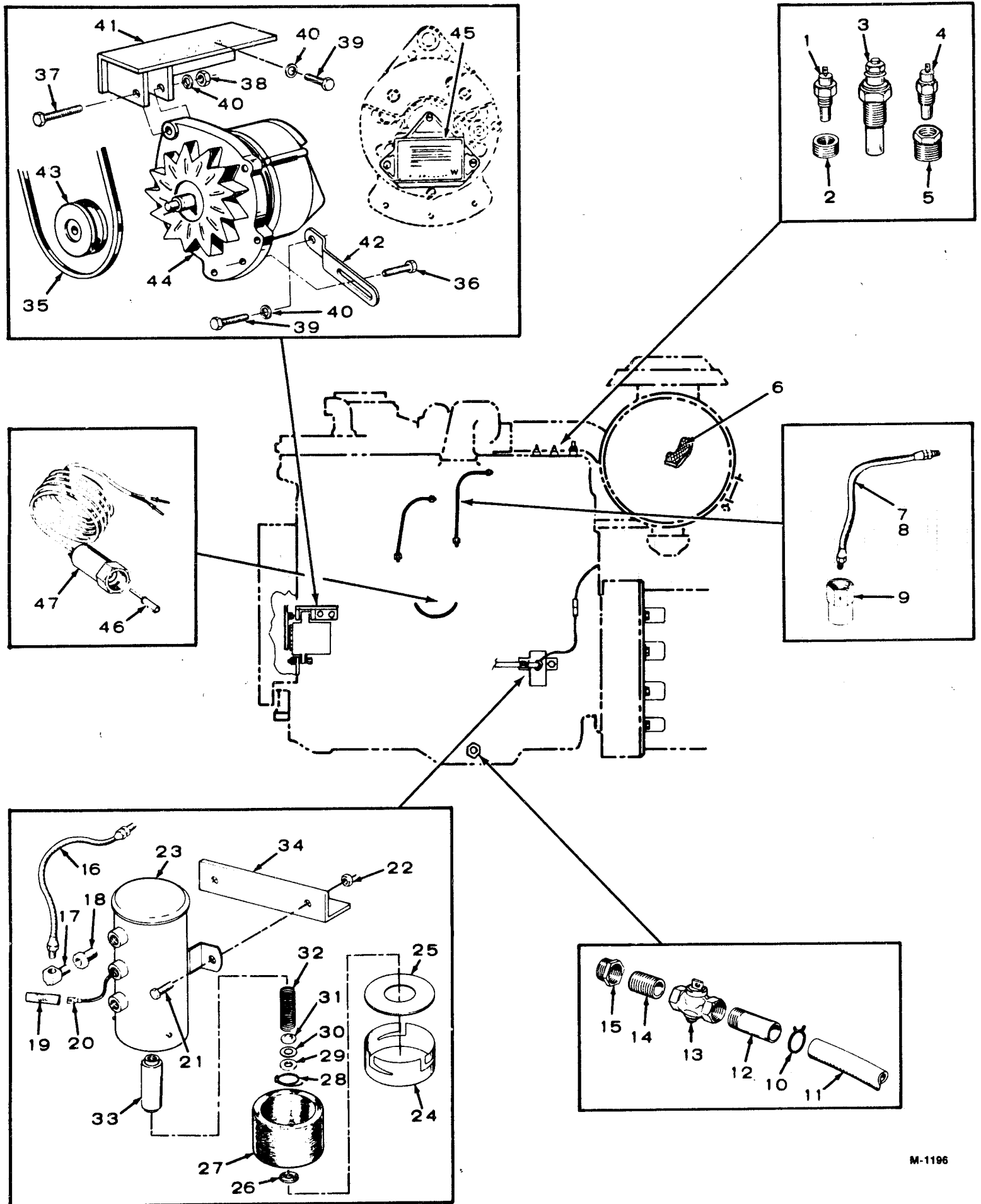
MISCELLANEOUS ENGINE PARTS (LEFT SIDE)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	WIRING HARNESS - ENGINE		
	338-0962	1	Standard
		1	Special (NOTE: Use Standard Wiring Harness and electrical leads as required for optional sensors, switches per Gen Set wiring diagram).
2	821-0029	1	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
3	309-0269	1	†Switch, Thermostatic - Low Engine Temperature
4	193-0249	1	Sender, Pressure - Oil
5	309-0272	1	†Switch, Pressure - Low Oil
6	309-0169	1	Switch, Pressure - Low Oil
7	505-0026	1	Coupling, Pipe (1/8 NPT)
8	505-0098	1	Nipple, Pipe - Close (1/8 NPT x 3/4")
9	416-0632	1	Cable, Electrical - Starter to Ground
10	416-0445	1	Cable, Battery - Negative
11	416-0473	1	Cable, Jumper
12	416-0444	1	Cable, Battery - Positive
13	800-0136	3	Screw, Cap - Hex Head (5/8-11 x 2-1/2")
14	850-0070	3	Washer, Lock - Spring (5/8")
15	191-1348	1	£Starter, Electrical - 24 Volt
16	800-0130	1	Screw, Cap - Hex Head (5/8-11 x 1")
17	850-0070	1	Washer, Lock - Spring (5/8")
18	856-0016	1	Washer, Lock - EIT (5/8")
19	332-1383	1	Assembly - Circuit Breaker & Terminal (Includes items 20 thru 30)
20	809-0035	1	Screw, Tapping - Roundhead (#8-3/4")
21	508-0015	1	Washer, Insulating - Fiber
22	870-0196	1	Nut, Insulated
23	800-0007	1	Screw, Cap - Hex Head (1/4-20 x 1")
24	862-0001	2	Nut, Hex (1/4-20)
25	856-0006	1	Washer, Lock - EIT (1/4")
26	850-0040	1	Washer, Lock - Spring (1/4")
27	813-0103	2	Screw, Machine - Roundhead (#10-32 x 3/4")
28	850-0030	2	Washer, Lock - Spring (#10)
29	320-0240	1	Circuit Breaker
30	332-1382	1	Board, Mounting
31	140-1548	1	Indicator, Service - Air Cleaner

† - Optional items, used with fault lights or gauges on Engine Control Panel.

£ - Manufactured by Delco Remy Division of General Motors Corporation, Anderson, Indiana 46011. For components or service, contact your nearest Delco Remy Dealer.

MISCELLANEOUS ENGINE PARTS (RIGHT SIDE)



M-1196

973-0223 (NOVEMBER 1980)

MISCELLANEOUS ENGINE PARTS (RIGHT SIDE)

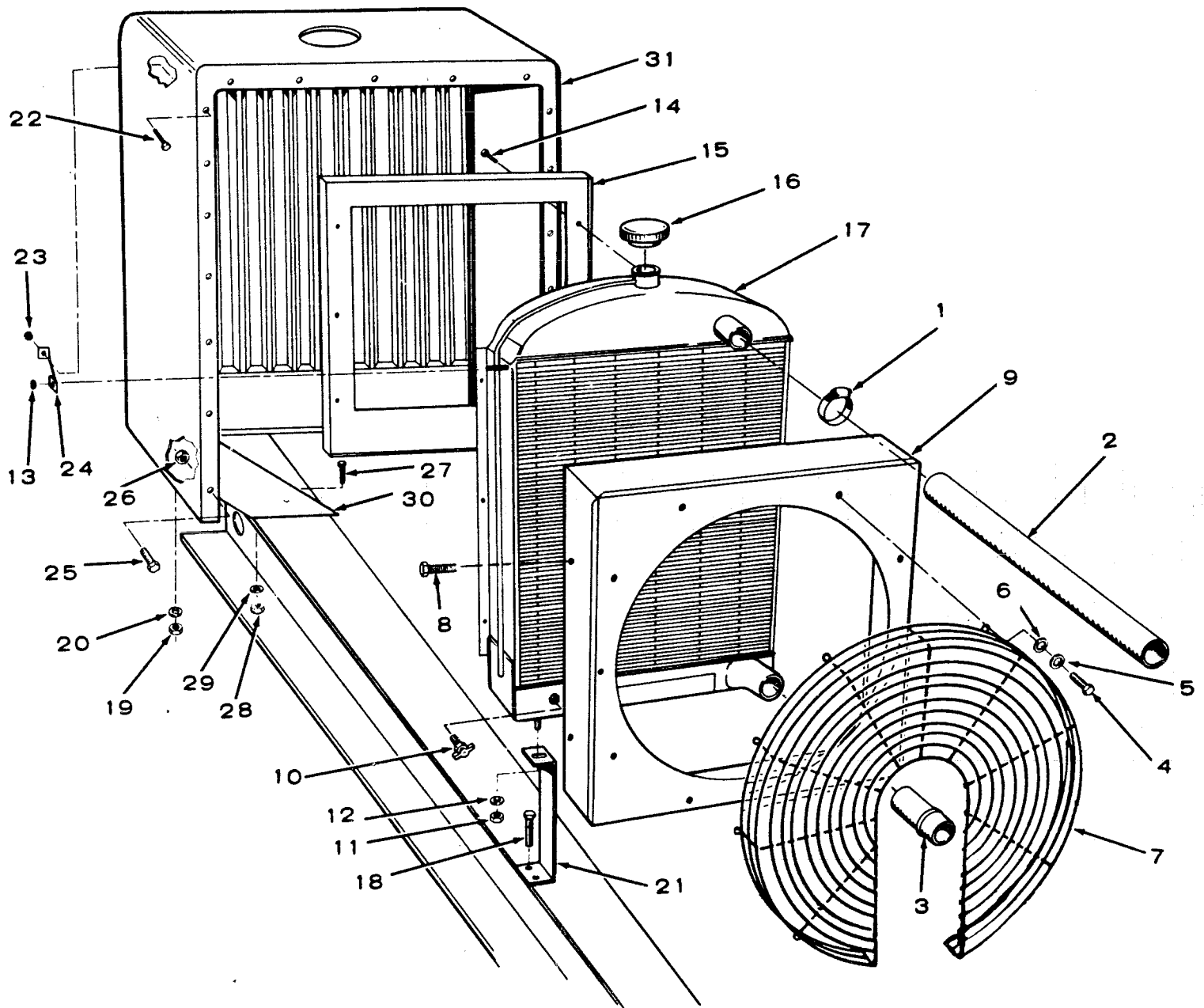
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	309-0179	1	†Switch, Thermostatic - High Coolant Temperature
2	505-0117	1	†Reducer, Bushing - Brass (1/2 NPT x 3/8 NPT)
3	193-0247	1	Sender, Temperature - Engine Coolant
4	309-0178	1	Switch, Thermostatic - High Coolant Temperature
5	505-0131	1	Reducer, Bushing - Hex (3/4 NPT x 3/8 NPT)
6	140-1735	1	Element, Filter - Air Cleaner
7	501-0227	1	Line, Fuel - Flexible (Incoming)
8	501-0225	1	Line, Fuel - Flexible (Return)
9	502-0051	1	Reducer, Coupling - Fuel Line
10	503-0197	1	Clamp, Hose
11	503-0098	AR	Hose, Rubber (3/4" ID x 1" OD)
12	505-0185	1	Nipple, Pipe - Half (1/2 NPT x 1-1/2")
13	504-0011	1	Valve, Cock
14	505-0100	1	Nipple, Pipe - Close (1/2 NPT x 1-1/8")
15	505-0022	1	Reducer, Bushing - Hex (1 NPT x 1/2 NPT)
16	501-0195	1	Line, Fuel - Flexible (Pump To Filter)
17	502-0183	1	Elbow, Pipe - 90 DEG
18	502-0143	1	Reducer, Bushing - Hex, Brass (1/4 NPT x 1/8 NPT)
19	332-0556	1	Connector Splice - Electrical
20	332-0529	AR	Terminal, Tab - Spade Type
21	821-0010	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
22	870-0212	2	Nut, Self-locking, Hex (1/4-20)
23	149-0890	1	Pump, Fuel - Electric (24 VDC) (Includes Items 24 Thru 33)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
24	149-1453	1	Cover
25	149-1446	1	Gasket, Cover
26	149-1447	1	Magnet
27	149-1445	1	Filter
28	149-1448	1	Retainer
29	149-1449	1	Washer
30	149-1450	1	Gasket, Spring Cup
31	149-1451	1	Spring, Cup Valve
32	149-0683	1	Spring
33	149-1452	1	Plunger
34	149-1162	1	Bracket, Mounting - Fuel Pump
35	511-0084	1	Belt, Drive
36	821-0016	1	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
37	800-0095	1	Screw, Cap - Hex Head (1/2-13 x 2")
38	862-0016	1	Nut, Hex (1/2-13)
39	800-0090	3	Screw, Cap - Hex Head (1/2-13 x 1")
40	850-0060	4	Washer, Lock - Spring (1/2")
41	191-0850	1	Bracket, Mounting - Alternator
42	191-0851	1	Bracket, Adjusting - Alternator
43	191-0781	1	Pulley, Drive - Alternator
44	191-0688	1	‡Alternator - 24 Volt (Model #RA24N-901)
45	191-0733	1	‡Regulator, Voltage - 24 Volt (Model #8RF3016A) (Part of Alternator)
46	302-0753	1	†Tang, Drive - Tachometer
47	302-0750	1	†Sender, Tachometer

† - Optional items, used with fault lights or gauges on Engine Control Panel.

‡ - Manufactured by Motorola Automotive Products, Inc., 9401 W. Grand Ave., Franklin Park, Illinois 60131. For components or service, contact your nearest Motorola Dealer.

COOLING SYSTEM (WITH RADIATOR)



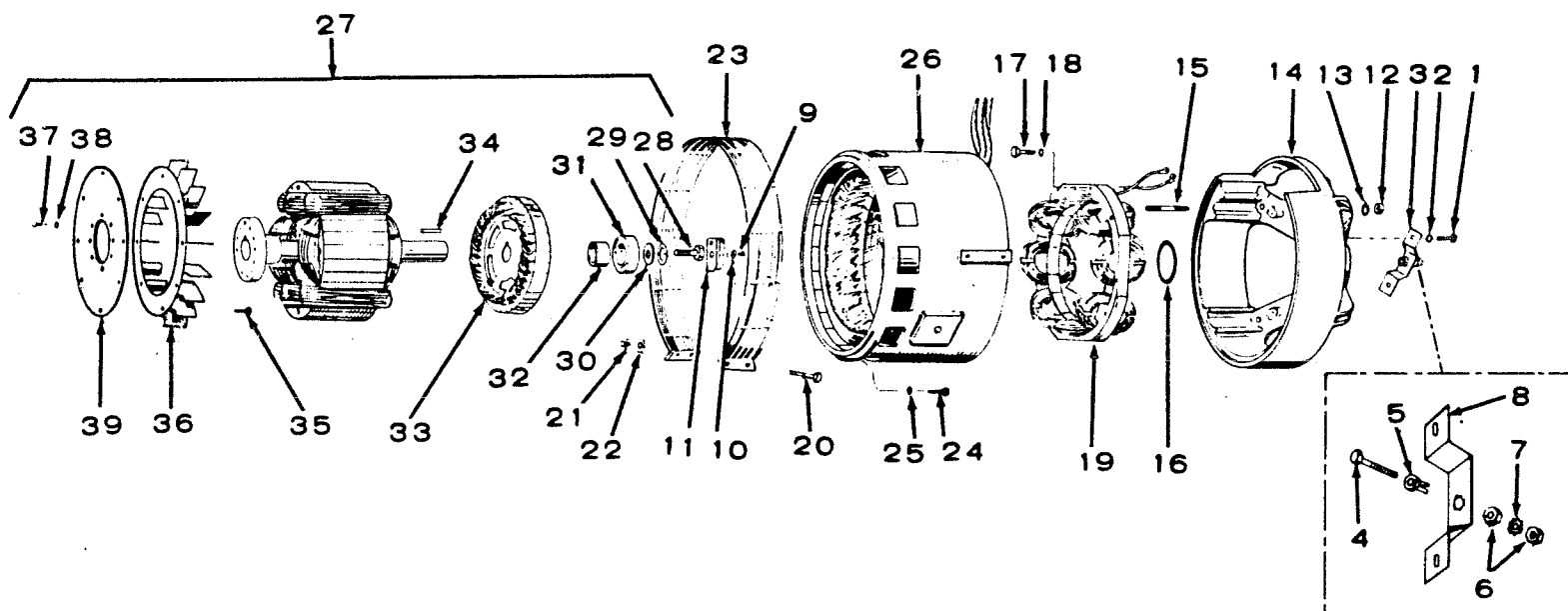
XCS-1053

973-0223 (NOVEMBER 1980)

COOLING SYSTEM (WITH RADIATOR)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0465	4	Clamp, Hose
2	503-0618	1	Hose, Rubber - Upper
3	503-0606	1	Hose, Rubber - Lower
4	800-0005	8	Screw, Cap - Hex Head (1/4-20 x 3/4")
5	850-0040	8	Washer, Lock - Spring (1/4")
6	526-0018	8	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
7	130-0832	1	Guard, Fan
8	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	130-0829	1	Shroud, Fan
10	504-0028	1	Cock, Drain
11	862-0016	2	Nut, Hex (1/2-13)
12	850-0060	2	Washer, Lock - Spring (1/2")
13	870-0257	2	Nut, Self-locking, Hex (5/16-18)
14	821-0010	6	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
15	130-0845	1	Shroud, Radiator
16	130-0449	1	Cap, Radiator
17	130-0834	1	Radiator (Includes Cap)
18	800-0092	4	Screw, Cap - Hex Head (1/2-13 x 1-1/2")
19	862-0016	4	Nut, Hex (1/2-13)
20	850-0060	4	Washer, Lock - Spring (1/2")
21	130-0844	2	Bracket, Support - Radiator
22	821-0016	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
23	870-0257	2	Nut, Self-locking, Hex (5/16-18)
24	130-0833	2	Brace, Support - Radiator
25	821-0016	4	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
26	870-0257	4	Nut, Self-locking, Hex (5/16-18)
27	800-0030	6	Screw, Cap - Hex Head (5/16-18 x 1-1/4")
28	862-0015	6	Nut, Hex (5/16-18)
29	850-0045	6	Washer, Lock - Spring (5/16")
30	405-2016	2	Bracket, Mounting - Front Panel
31	405-1865	1	Panel, Housing - Front

GENERATOR ASSEMBLY



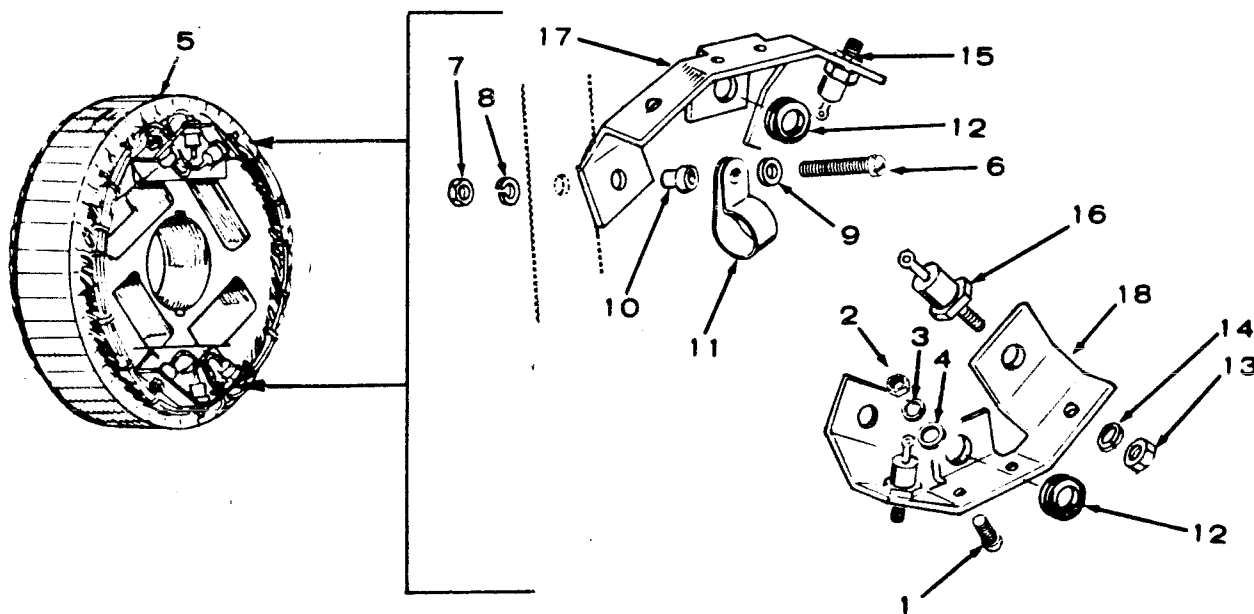
XG-1082

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")	26	STATOR ASSEMBLY, WOUND 220-1515	1	100 DYD - 15R50, 60 Hz, Penn State
2	850-0040	2	Washer, Lock - Spring (1/4")		220-1517	1	125 DYD - 15R, 60 Hz
3	150-1456	1	Bracket and Point Assembly, Overspeed (Includes Parts Marked †)		220-1612	1	125 DYD - 9XR, 60 Hz
4	150-0723	1	†Point		220-1989	1	100 DYD - 515R, 50 Hz
5	870-0250	1	†Nut, Insulated		220-2454	1	125 DYD - 7R, 60 Hz
6	862-0001	2	†Nut, Hex (1/4-20)		220-2639	1	125 DYD - 6D, 60 Hz
7	853-0013	1	†Washer, Lock - ET (1/4")	27	ROTOR ASSEMBLY, WOUND (Includes Items 28 Through 40)		
8	150-1356	1	†Bracket		201-2677	1	100 DYD - 15R50 Only
9	812-0189	1	Screw, Machine - Round Head (3/8-16 x 3/4")		201-2679	1	100 DYD - 515R, 125 DYD - 15R, 9XR, 7R, 6D
10	856-0010	1	Washer, Lock - EIT (3/8")	28	800-0513	1	Screw, Cap - Hex Head Special (3/4-10 x 1-1/2")
11	150-0717	1	Switch, Overspeed	29	850-0079	1	Washer, Lock - Spring (3/4")
12	862-0011	4	Nut, Hex (3/8-16)	30	526-0238	1	Washer, Flat (13/16" ID x 2" OD x 3/16" Thk)
13	850-0050	4	Washer, Lock - Spring (3/8")	31	510-0101	1	Bearing, Ball
14	211-0185	1	Bell, End	32	232-2102	1	Spacer, Sleeve
15	520-0735	4	Stud	33	201-1739	1	Rotor Assembly, Exciter (See Separate Group for Components)
16	509-0125	1	Seal "O" Ring	34	515-0145	1	Key
17	800-0009	4	Screw, Cap - Hex Head (1/4-20 x 1-1/2")	35	805-0032	8	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
18	850-0040	4	Washer, Lock - Spring (1/4")	36	205-0095	1	Fan, Generator
19	220-2353	1	Stator, Exciter	37	805-0033	8	Screw, Cap - Hex Head (5/8-11 x 1")
20	800-0008	2	Screw, Cap - Hex Head (1/4-20 x 1-1/4")	38	526-0259	8	Washer, Flat - Hardened (11/16" ID x 1-3/8" OD x .104" Thk)
21	862-0001	2	Nut, Hex (1/4-20)	39	232-2037	1	Disc, Drive - Generator
22	850-0040	2	Washer, Lock - Spring (1/4")				
23	234-0368	1	Screen, Generator				
24	800-0073	12	Screw, Cap - Hex Head (7/16-14 x 1-1/2")				
25	850-0055	12	Washer, Lock - Spring (7/16")				

† - Parts Included in 150-1456 Overspeed Bracket and Point Assembly.

973-0223 (NOVEMBER 1980)

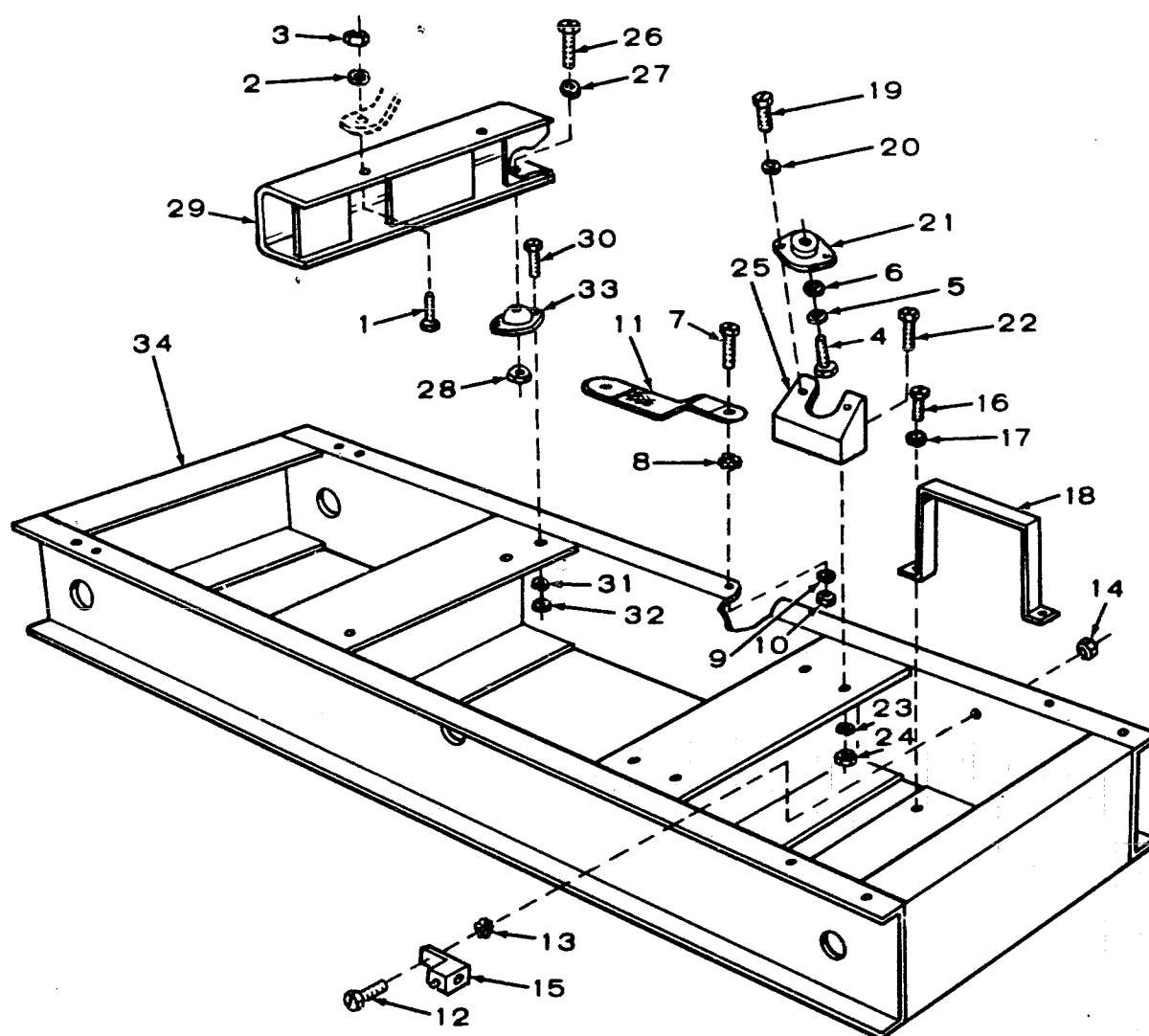
EXCITER ROTOR



G-1030

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	813-0100	2	Screw, Machine - Round Head (#10-32 x 1/2")
2	870-0053	2	Nut, Hex (#10-32)
3	850-0030	2	Washer, Lock - Spring (#10)
4	526-0008	2	Washer, Flat (13/64" ID x 7/16" OD x 1/32" Thk)
5	201-1739	1	Rotor Assembly, Exciter (Includes Items 6 through 18)
6	813-0110	4	Screw, Machine - Round Head (#10-32 x 2")
7	870-0053	4	Nut, Hex (#10-32)
8	850-0030	4	Washer, Lock - Spring (#10)
9	526-0009	4	Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
10	508-0187	4	Spacer, Stepped
11	332-0050	2	Clamp, Loop
12	508-0093	2	Grommet, Rubber
13	870-0053	6	Nut, Hex (#10-32)
14	850-0030	6	Washer, Lock - Spring (#10)
15	358-0016	3	Diode, Rectifier - Positive (CR1, CR2, CR3)
16	358-0015	3	Diode, Rectifier - Negative (CR4, CR5, CR6)
17	363-0054	1	Heat, Sink - Positive Diodes
18	363-0055	1	Heat, Sink - Negative Diodes

CHASSIS



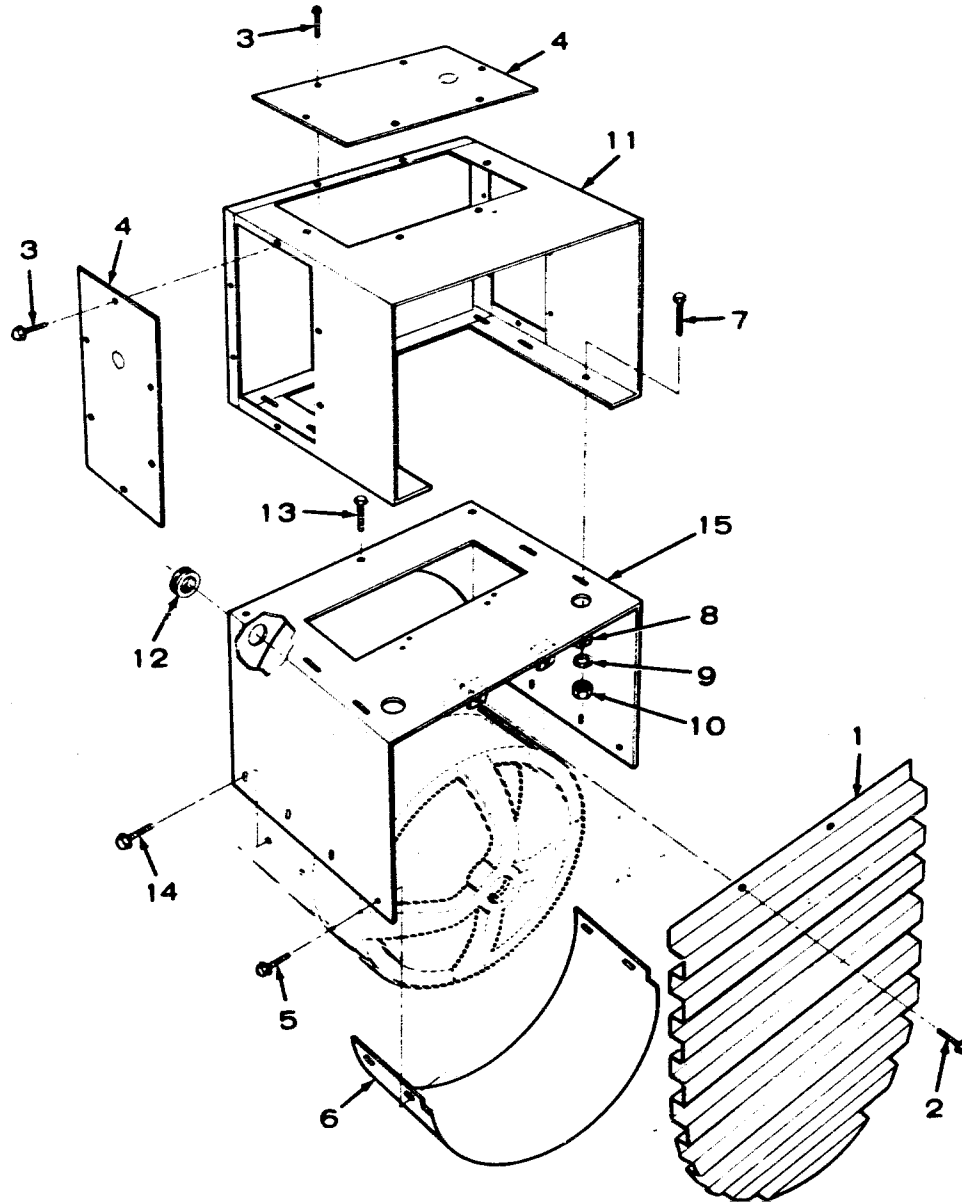
M-1177

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0138	2	Screw, Cap - Hex Head (5/8-11 x 3")
2	850-0070	2	Washer, Lock - Spring (5/8")
3	862-0007	2	Nut, Hex (5/8-11)
4	800-0163	2	Screw, Cap - Hex Head (3/4-10 x 4")
5	526-0238	2	Washer, Flat (13/16" ID x 2" OD x 3/16" Thk)
6	850-0079	2	Washer, Lock - Spring (3/4")
7	800-0092	1	Screw, Cap - Hex Head (1/2-13 x 1-1/2")
8	856-0013	1	Washer, Lock - EIT (1/2")
9	850-0060	1	Washer, Lock - Spring (1/2")
10	862-0016	1	Nut, Hex (1/2-13)
11	337-0090	1	Strap, Ground
12	800-0028	1	Screw, Cap - Hex Head (5/16-18 x 1")
13	856-0008	1	Washer, Lock - EIT (5/16")
14	870-0257	1	Nut, Self-Locking, Hex (5/16-18)
15	332-1473	1	Lug, Terminal - Solderless
16	800-0035	4	Screw, Cap - Hex Head (5/16-18 x 2-1/2")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
17	850-0045	4	Washer, Lock - Spring (5/16-18)
18	416-0635	2	Strap, Holddown - Battery
19	800-0090	4	Screw, Cap - Hex Head (1/2-13 x 1")
20	850-0060	4	Washer, Lock - Spring (1/2")
21	402-0384	2	Mount, Vibration - Generator
22	800-0132	4	Screw, Cap - Hex Head (5/8-11 x 1-1/2")
23	850-0070	4	Washer, Lock - Spring (5/8")
24	862-0007	4	Nut, Hex (5/8-11)
25	232-2208	2	Bracket, Mounting - Generator
26	800-0153	2	Screw, Cap - Hex Head (3/4-10 x 1-1/2")
27	850-0079	2	Washer, Lock - Spring (3/4")
28	862-0008	2	Nut, Hex (3/4-10)
29	403-0959	1	Support, Mounting - Engine
30	800-0092	4	Screw, Cap - Hex Head (1/2-13 x 1-1/2")
31	850-0060	4	Washer, Lock - Spring (1/2")
32	862-0016	4	Nut, Hex (1/2-13)
33	402-0371	2	Mount, Vibration - Engine
34	403-1132	1	Base, Skid

973-0223 (NOVEMBER 1980)

CONTROL HOUSING



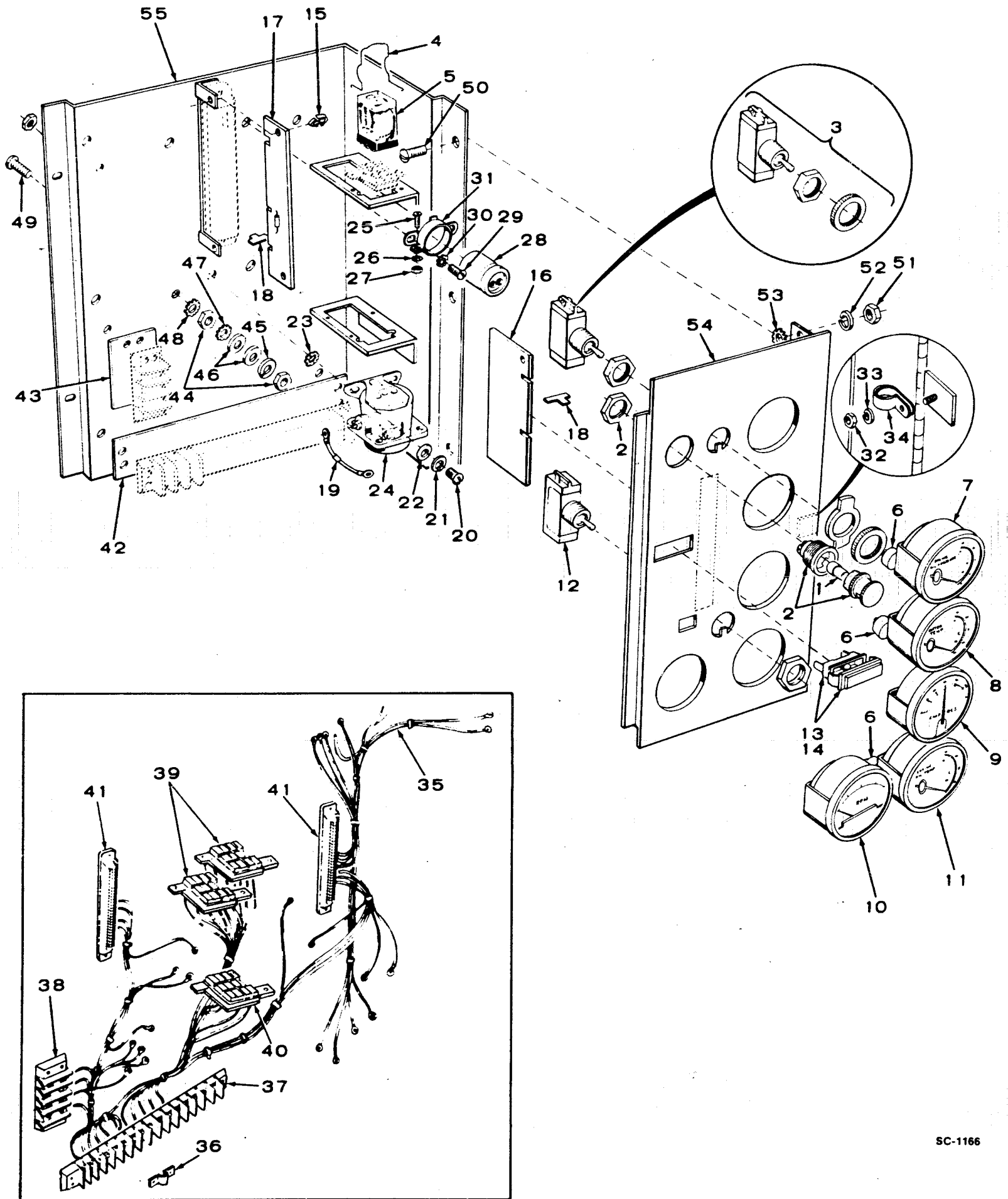
M-1180

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	821-0010	8	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
2	234-0370	1	Grill, Air - Generator Inlet
3	815-0350	18	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")
4	301-3156	3	Panel, Access
5	821-0010	4	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
6	234-0361	1	Wrapper, End Bell
7	821-0018	6	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	856-0006	1	Washer, Lock - EIT (1/4")
9	526-0018	5	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
10	870-0212	6	Nut, Hex (1/4-20)
11	301-3155	1	Housing, Control Box
12	508-0203	1	Rushing, Cable - Nylon
13	821-0010	1	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
14	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
15	301-3154	1	Saddle, Control Box

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ENGINE CONTROL WITH ONE FAULT LIGHT



SC-1166

973-0223 (NOVEMBER 1980)

ENGINE CONTROL WITH ONE FAULT LIGHT

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
CONTROL, ENGINE (24 VDC) WITH ONE FAULT LIGHT			
1	322-0004	1	Lamp, Incandescent (24 VDC)
2	322-0149	1	Lampholder
3	308-0002	1	Switch, Toggle (SPST)
4	307-1157	3	Spring, Holddown - Relay
5	RELAY (24 VDC)		
	307-1056	1	(Ignition)
	307-1056	1	(Start Disconnect)
	307-1061	1	(Starter Protection)
6	193-0250	AR	Resistor - Gauge
7	193-0243	1	Gauge - Oil Pressure (12 VDC)
8	193-0245	1	Gauge - Water Temperature (12 VDC)
9	302-0061	1	Ammeter
10	302-0749	1	£Tachometer - Electrical
11	193-0248	1	£Gauge - Oil Temperature (12 VDC)
12	SWITCH, TOGGLE - SELECTOR		
	308-0138	1	Standard & Cycle Cranking Controls
	309-0327	1	Penn State Controls
13	*LIGHT, INDICATOR - 28 VDC (Lens Color & Legend Listed Below)		
	322-0129	1	Red - Fault
14	322-0137	AR	*Light, Indicator - 14 VDC (Red Lens - No Legend)
15	518-0374	4	Fastener, Snap-In (Printed Circuit Boards)
16	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)		
	300-0751	1	Standard Cranker (24 VDC)
	300-0715	1	Cycle Cranker (24 VDC)
17	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)		
	300-0680	1	Engine Control Monitor - Standard
18	332-1276	AR	Plug, Keying - PC Board
19	357-0018	1	Diode, with Terminals
20	813-0098	2	Screw, Machine - Round Head (#10-32 x 3/8")
21	850-0030	2	Washer, Lock - Spring (#10)
22	526-0009	2	Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
23	856-0003	2	Washer, Lock - EIT (#10)
24	307-0061	1	Relay, Solenoid - Start (24 VDC)
25	812-0061	1	Screw, Machine - Round Head (#6-32 x 3/8")
26	860-0006	1	Nut, Hex (#6-32)
27	853-0003	1	Washer, Lock - ET (#6)
28	356-0072	1	Capacitor, Fixed, Electrolytic (4000 MFD, 30 VDC)
29	812-0063	2	Screw, Machine - Round Head (#6-32 x 1/2")

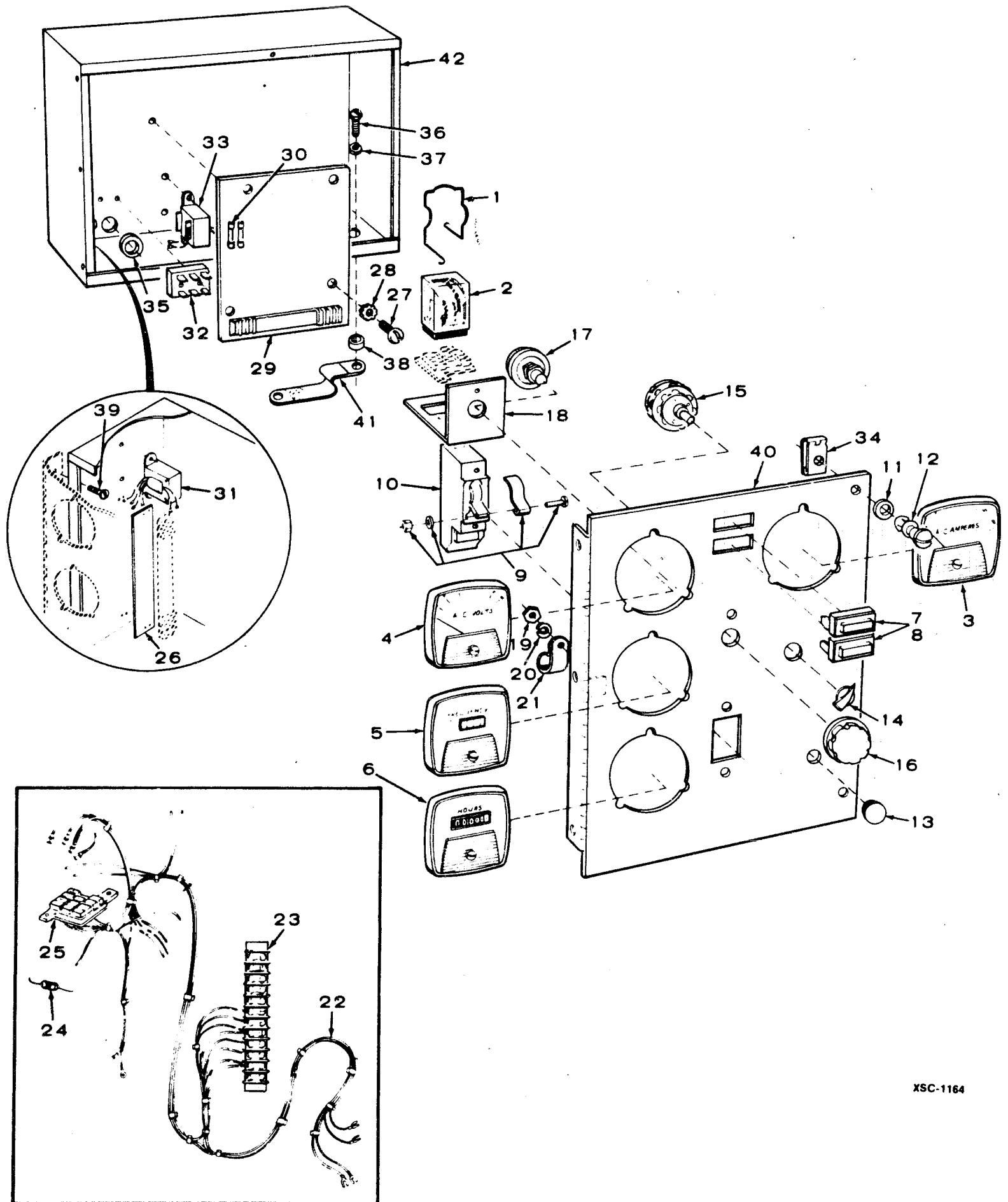
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
30	853-0003	2	Washer, Lock - ET (#6)
31	356-0070	1	Clamp, Capacitor Mounting
32	870-0053	1	Nut, Hex (#10-32)
33	850-0030	1	Washer, Lock - Spring (#10)
34	332-0051	1	Clamp, Loop
35	HARNESS, WIRING - ENGINE CONTROL		
	338-1065	1	Includes Items 36 Through 41
ATTACHING HARDWARE FOR WIRING HARNESS			
	812-0061	4	Screw, Machine - Round Head (#6-32 x 3/8")
	812-0066	6	Screw, Machine - Round Head (#6-32 x 3/4")
	853-0003	14	Washer, Lock - ET (#6)
	860-0006	10	Nut, Hex (#6-32)
36	332-1043	1	Jumper, Terminal
37	332-0795	1	Block, Terminal - 16 Place
38	332-0537	1	Block, Terminal - 4 Place
39	323-0765	2	Socket, Relay - 11 Place
40	323-0764	1	Socket, Relay - 8 Place
41	332-1271	2	Connector, Electrical - PC Board
42	332-1241	1	Strip, Marker - Terminal
43	332-1239	1	Strip, Marker - Terminal
GROUND TERMINAL ASSEMBLY (Includes Items 44 Through 49)			
44	871-0010	2	Nut, Hex - Brass (#10-32)
45	850-0030	1	Washer, Lock - Spring (#10)
46	526-0205	2	Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/16" Thk)
47	853-0008	1	Washer, Lock - ET (#10)
48	856-0003	1	Washer, Lock - EIT (#10)
49	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
50	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
51	870-0053	1	Nut, Hex (#10-32)
52	850-0030	1	Washer, Lock - Spring (#10)
53	856-0003	1	Washer, Lock - EIT (#10)
54	PANEL, CONTROL - ENGINE		
	301-3165	AR	With Three Gauge Mtg. Holes
	301-3286	AR	With Four Gauge Mtg. Holes
	301-3396	AR	With Five Gauge Mtg. Holes
55	301-3253	1	Bracket, Mounting Engine Control

* - **NOTE:** For lamp replacement order 322-0137.

Remove and discard plain red lens, install lens with legend from burned out light — lights snap in and out of panel.

£ - Optional items used with Engine Mounted Senders.

CONTROL - GENERATOR



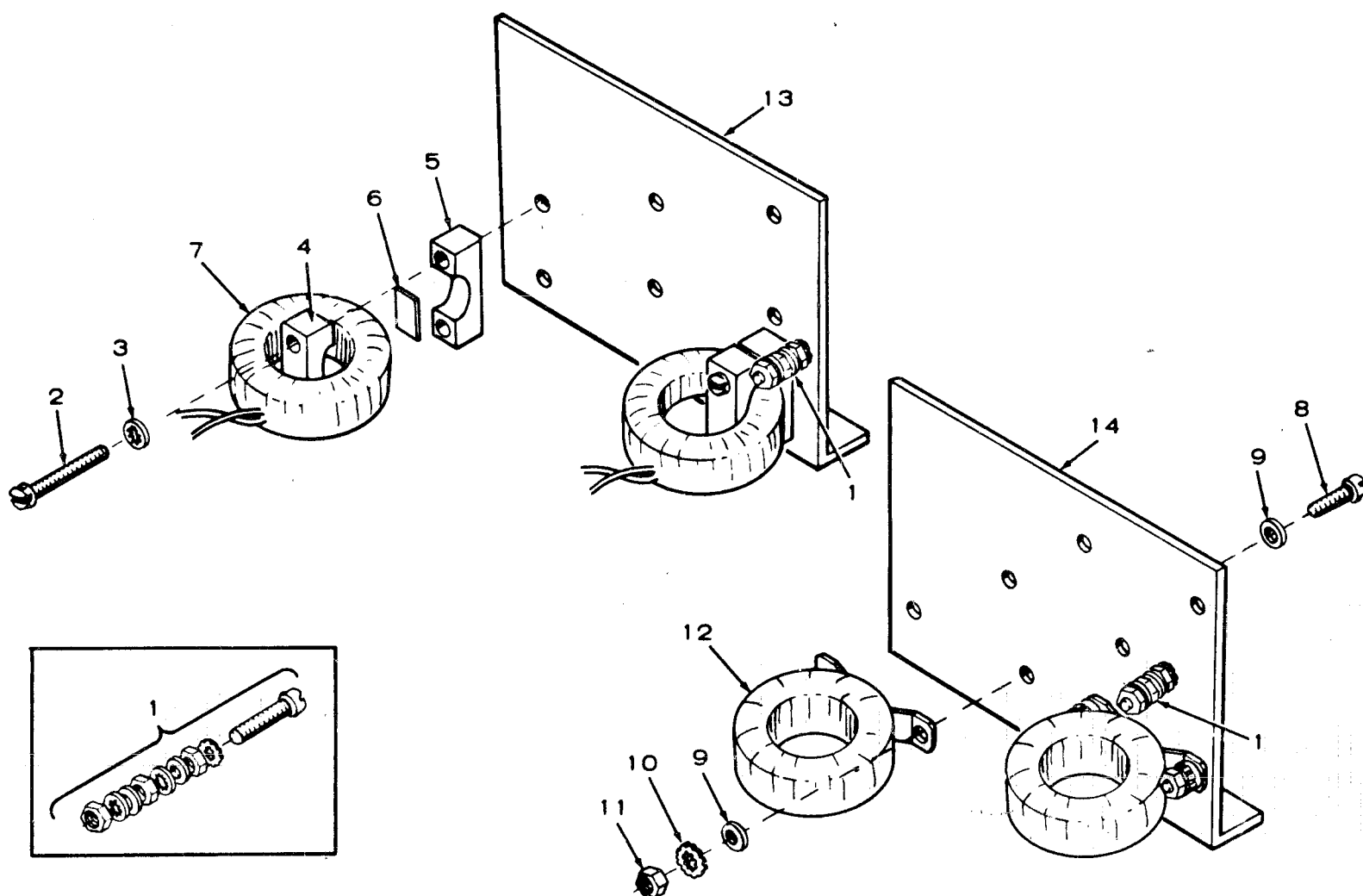
XSC-1164

973-0223 (NOVEMBER 1980)

GENERATOR CONTROL

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	307-1157	1	Spring, Holddown, Relay - Code 15R, 515R Only)	13	517-0131	1	Plug, Plastic
2	307-1061	1	Relay (24 VDC) - Code 15R, 515R Only	14	303-0076	1	Knob, Pointer
3	AMMETER (Select as Required)			15	308-0284	1	Switch, Selector
			DUAL SCALE	16	303-0032	1	Knob
	302-0723	1	0-250, 0-500 Amp (101-125 kW) Codes - 15R, 15R50, 515R	17	303-0170	1	Rheostat (35K Ohms, 25 Watt)
	302-0724	1	0-375, 0-750 Amp (126-180 kW) Codes 15R, 15R50, 515R	18	301-3244	1	Bracket, Mounting, Relay - Code 15R, 15R50, 515R Only
			SINGLE SCALE	19	870-0053	1	Nut, Hex (#10-32)
	302-0410	1	0-150 Amp, (71-110 kW) Codes 9XR, 9XR50	20	850-0030	1	Washer, Lock - Spring (#10)
	302-0411	1	0-200 Amp (91-120 kW) Codes 6DR, 6DR50, 7R, 7R50	21	332-0051	1	Clamp, Loop
	302-0411	1	0-200 Amp (111-145 kW) Codes 9XR, 9XR50	22	HARNES, WIRING - GENERATOR CONTROL (Includes Item 23)		
	302-0412	1	0-250 Amp (121-150 kW) Codes 6DR, 6DR50, 7R, 7R50		338-0730	1	Codes 15R, 15R50, 515R (Includes Items 24,25)
	302-0412	1	0-250 Amp (146 to 180 kW) Codes 9XR, 9XR50		338-0759	1	Codes 6DR, 9XR
	302-0413	1	0-300 Amp (151 to 180 kW) Codes 6DR, 6DR50		338-1063	1	Code 7R
	302-0605	1	0-400 Amp (146 to 180 kW) Codes 7R, 7R50		ATTACHING HARDWARE FOR WIRING HARNESS		
4	VOLTMETER (Select as Required)				812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	302-0718	1	Dual Scale (0-300 V, 0-600 V) Codes 15R, 15R50, 515R		812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")
	302-0422	1	Scale (0-600 V) Codes 6DR, 6DR50		850-0020	2	Washer, Lock - Spring (#6)
	302-0612	1	Scale (0-500 V) Codes 7R, 7R50		853-0003	4	Washer, Lock - ET (#6)
	302-0779	1	Scale (-0750 V) Codes 9XR, 9XR50		860-0006	2	Nut, Hex (#6-32)
5	METER, FREQUENCY (Select as Required)			23	332-0795	1	Block, Terminal - 16 Place
			REED TYPE	24	350-0556	1	Resistor, Fixed, Composition (47 K Ohms, 1/2 Watt)
	302-0213	1	15 VAC, 60 Hz	25	323-0765	1	Socket, Relay - 11 Place
	302-0221	1	230 VAC, 60 Hz	26	332-1242	1	Strip, Marker - Terminal
	302-0234	1	115 VAC, 50 Hz	27	812-0065	4	Screw, Machine - Round Head (#6-32 x 5/8")
	302-0256	1	230 VAC, 50 Hz	28	853-0003	4	Washer, Lock - ET (#6)
			POINTER TYPE	29	332-1956	1	Regulator, Voltage (See Separate Parts Catalog #900-0234 for Components)
	302-0809	1	120 VAC, 60 Hz	30	321-0204	2	Fuse, Cartridge (1/4 Amp)
	302-0810	1	208 VAC, 60 Hz	31	315-0431	1	Transformer, Voltage
	302-0811	1	240 VAC, 60 Hz		ATTACHING PARTS FOR TRANSFORMER		
6	METER, TIME TOTALIZING (Select as Required)				812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	302-0466	1	60 Hz		853-0003	2	Washer, Lock - ET (#6)
	302-0469	1	50 Hz	32	305-0524	1	Rectifier Bridge
7	LIGHT, INDICATOR - 125 VAC (Lens Color & Legend Listed Below)				ATTACHING PARTS FOR RECTIFIER		
	322-0130	1	Red - Lower Scale		812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")
	322-0131	1	Red - Upper Scale		853-0003	2	Washer, Lock - ET (#6)
8	322-0178	AR	Light, Indicator - 125 VAC (Amber Lens - No Legend)	33	315-0384	1	Reactor
9	320-0307	1	Lock - Circuit Breaker Handle (Penn State Sets)		ATTACHING PARTS FOR REACTOR		
	ATTACHING HARDWARE FOR LOCK				812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	815-0203	1	Screw, Machine - Round Head (#10-32 x 7/8")		853-0003	2	Washer, Lock - ET (#6)
	854-0010	1	Washer, Lock - IT (#10)	34	406-0332	2	Receptacle, Turnbutton Fastener
	871-0010	1	Nut, Hex (#10-32)	35	508-0001	4	Grommet, Rubber
10	320-0431	1	Circuit Breaker - 2 Amp	36	800-0045	4	Screw, Cap - Hex Head (5/16-18 x 3/8")
	ATTACHING HARDWARE FOR CIRCUIT BREAKER			37	850-0045	4	Washer, Lock - Spring (5/16")
	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")	38	402-0070	4	Dampener, Vibration
	850-0020	2	Washer, Lock - Spring (#6)	39	815-0026	3	Screw, Machine - Truss Head (#10-32 x 3/8")
	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")	40	PANEL, CONTROL		
	871-0010	1	Nut, Hex - Brass (#10-32)		301-3170	1	Codes 15R, 15R50, 515R
	853-0008	1	Washer, Lock - ET (#10)		301-3342	1	Codes 6DR, 7R, 9XR
	526-0049	1	Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/32" Thk)	41	337-0049	1	Strap, Ground
11	406-0334	2	Clip, Retaining - Turnbutton Fastener		ATTACHING PARTS FOR STRAP		
12	406-0333	2	Stud, Turnbutton Fastener		800-0046	1	Screw, Cap - Hex Head (5/16-18 x 3/8")
					850-0045	1	Washer, Lock - Spring (5/16")
					856-0008	2	Washer, Lock - EIT (5/16")
					862-0015	1	Nut, Hex (5/16-18)
				42	301-3158	1	Box, Control

CURRENT TRANSFORMER ASSEMBLY



SC-1150

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	CURRENT TRANSFORMER ASSEMBLY (Select Components as Required)		
1	GROUND TERMINAL ASSEMBLY (Includes Following Items)		
	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
	871-0010	3	Nut, Hex - Brass (#10-32)
	856-0003	1	Washer, Lock - EIT (#10)
	854-0010	2	Washer, Lock - IT (#10)
	526-0049	2	Washer, Flat - Brass (13/64" ID x 7/32" OD x 1/32" Thk)
2	813-0110	AR	Screw, Machine - Round Head (#10-32 x 2")
3	854-0010	AR	Washer, Lock - IT (#10)
4	302-0235	AR	Clamp, Upper
5	302-0236	AR	Clamp, Lower
6	302-0253	AR	Shim

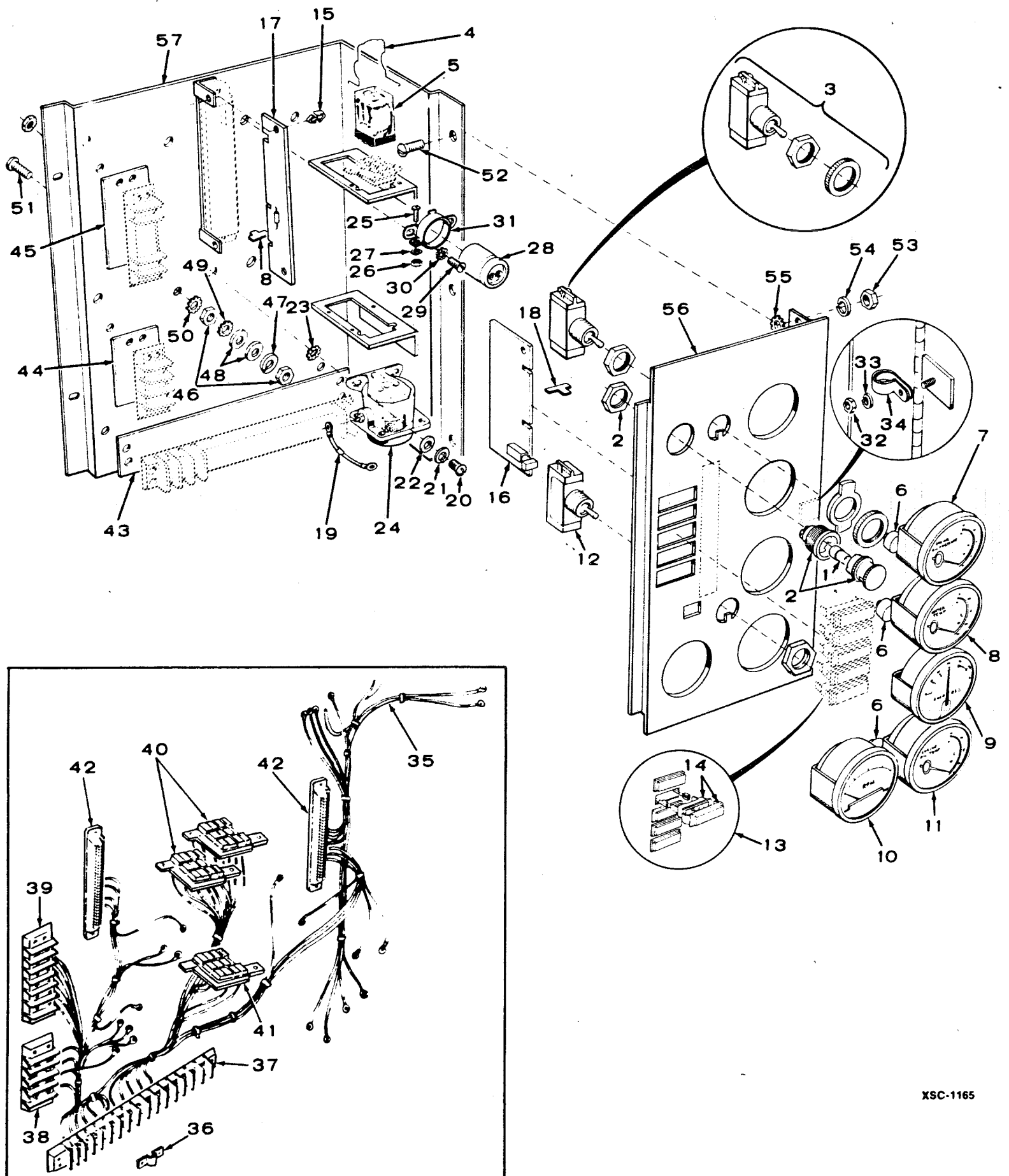
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
7	CURRENT TRANSFORMER (Select Size As Required)		
	302-0117	AR	Ratio 50/5, 3 VA
	302-0076	AR	Ratio 75/5, 2 VA
	302-0078	AR	Ratio 100/5, 2 VA
	302-0079	AR	Ratio 150/5, 1 VA
	302-0106	AR	Ratio 200/5, 1 VA
	302-0209	AR	Ratio 230/5, 1 VA
	302-0107	AR	Ratio 300/5, 1 VA
8	813-0100	AR	Screw, Machine - Round Head (#10-32 x 1/2")
9	526-0008	AR	Washer, Flat (13/64" ID x 7/16" OD x 1/32" Thk)
10	856-0003	AR	Washer, Lock - EIT (#10)
11	870-0053	AR	Nut, Hex (#10-32)
12	CURRENT TRANSFORMER (Select Size As Required)		
	302-0952	AR	Ratio 75/5, 2 VA
	302-0864	AR	Ratio 150/5, 2 VA
	302-0865	AR	Ratio 200/5, 2 VA
	302-0866	AR	Ratio 250/5, 2 VA
	302-0608	AR	Ratio 400/5, 2 VA
	302-0547	AR	Ratio 500/5, 2 VA
	302-0471	AR	Ratio 750/5, 2 VA
13	302-0729	1	Bracket, Mounting - Transformer
14	302-0764	1	Bracket, Mounting - Transformer

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OPTIONAL EQUIPMENT SECTION

This section contains parts listing of factory installed options.
NOTE: options may not be applicable to all models; for field installations, additional parts are usually required.

OPTIONAL ENGINE CONTROL WITH FIVE FAULT LIGHTS



XSC-1165

973-0223 (NOVEMBER 1980)

OPTIONAL ENGINE CONTROL WITH FIVE FAULT LIGHTS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
CONTROL, ENGINE (24 VDC) WITH FIVE FAULT LIGHTS			
1	322-0004	1	Lamp, Incandescent (24 VDC)
2	322-0149	1	Lampholder
3	308-0002	1	Switch, Toggle (SPST)
4	307-1157	3	Spring, Holddown - Relay
5	RELAY (24 VDC)		
	307-1056	1	(Ignition)
	307-1056	1	(Start Disconnect)
	307-1061	1	(Starter Protection)
6	193-0250	AR	Resistor - Gauge
7	193-0243	1	Gauge - Oil Pressure (12 VDC)
8	193-0245	1	Gauge - Water Temperature (12 VDC)
9	302-0061	1	Ammeter
10	302-0749	1	£Tachometer - Electrical
11	193-0248	1	£Gauge - Oil Temperature (12 VDC)
12	SWITCH, TOGGLE - SELECTOR		
	308-0138	1	Standard & Cycle Cranking Controls
	309-0327	1	Penn State Controls
13	*LIGHT, INDICATOR - 28 VDC (Lens Color & Legend Listed Below)		
	322-0119	1	Red - OVERCRANK
	322-0123	1	Red - OVERSPEED
	322-0120	1	Red - LO OIL PRESS
	322-0121	1	Red - HI ENG TEMP
	322-0122	1	Red - LO ENG TEMP
14	322-0137	AR	*Light, Indicator - 14 VDC (Red Lens - No Legend)
15	518-0374	4	Fastener, Snap-In (Printed Circuit Boards)
16	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)		
	300-0751	1	Standard Cranker (24 VDC)
	300-0715	1	Cycle Cranker (24 VDC)
17	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)		
	300-0682	1	Engine Control Monitor - Standard
18	332-1276	AR	Plug, Keying - PC Board
19	357-0018	1	Diode, with Terminals
20	813-0098	2	Screw, Machine - Round Head (#10-32 x 3/8")
21	850-0030	2	Washer, Lock - Spring (#10)
22	526-0009	2	Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
23	856-0003	2	Washer, Lock - EIT (#10)
24	307-0061	1	Relay, Solenoid - Start (24 VDC)
25	812-0061	1	Screw, Machine - Round Head (#6-32 x 3/8")
26	860-0006	1	Nut, Hex (#6-32)
27	853-0003	1	Washer, Lock - ET (#6)
28	356-0072	1	Capacitor, Fixed, Electrolytic (4000 MFD, 30 VDC)

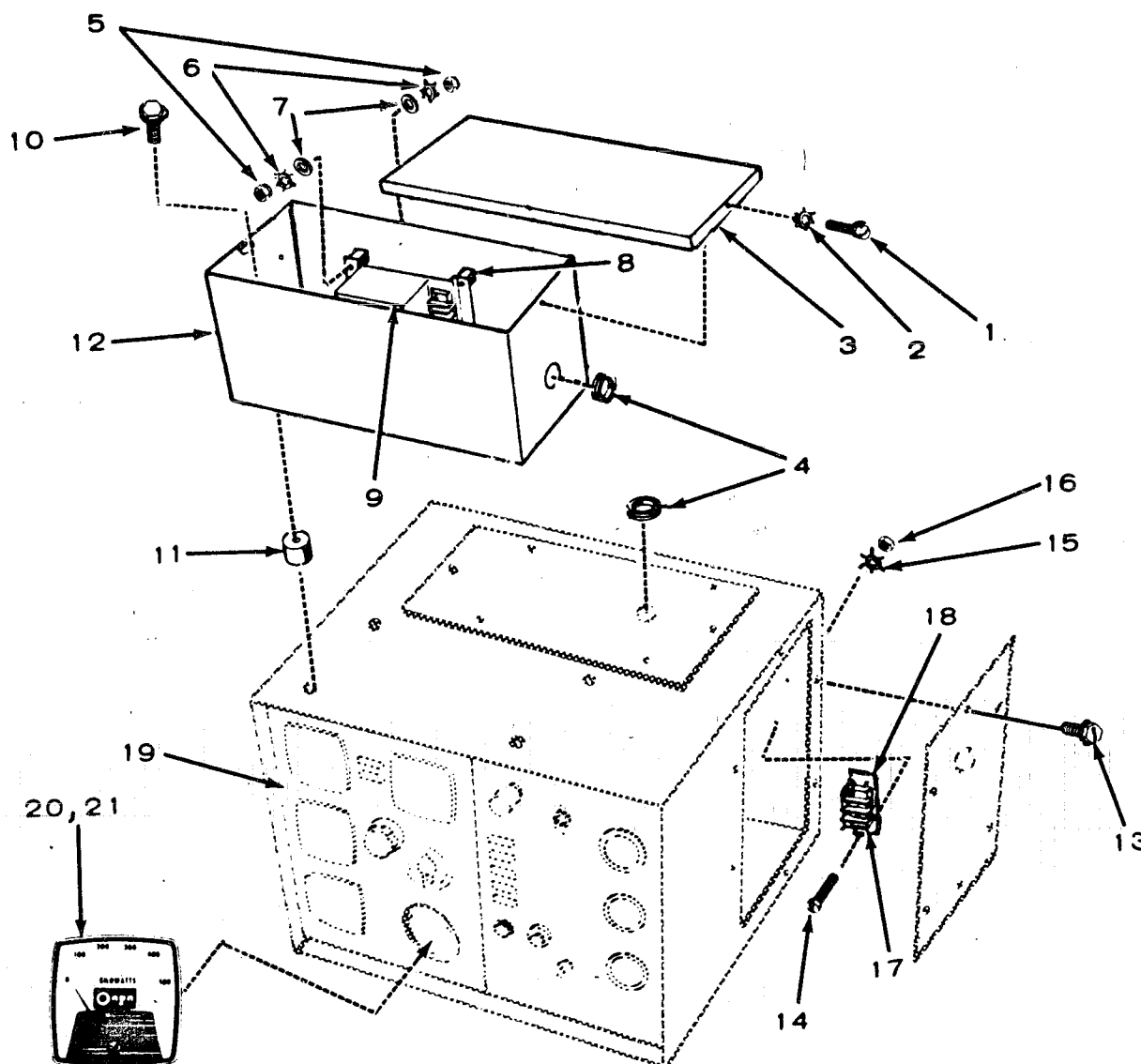
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
29	812-0063	2	Screw, Machine - Round Head (#6-32 x 1/2")
30	853-0003	2	Washer, Lock - ET (#6)
31	356-0070	1	Clamp, Capacitor Mounting
32	870-0053	1	Nut, Hex (#10-32)
33	850-0030	1	Washer, Lock - Spring (#10)
34	332-0051	1	Clamp, Loop
35	HARNES, WIRING - ENGINE CONTROL		
	338-1066	1	Includes Items 36 Through 42
	ATTACHING HARDWARE FOR WIRING HARNES		
	812-0063	6	Screw, Machine - Round Head (#6-32 x 1/2")
	812-0066	6	Screw, Machine - Round Head (#6-32 x 3/4")
	853-0003	14	Washer, Lock - ET (#6)
	860-0006	10	Nut, Hex (#6-32)
36	332-1043	1	Jumper, Terminal
37	332-0795	1	Block, Terminal - 20 Place
38	332-0537	1	Block, Terminal - 4 Place
39	332-0699	1	Block, Terminal - 6 Place
40	323-0765	2	Socket, Relay - 11 Place
41	323-0764	2	Socket, Relay - 8 Place
42	332-1271	1	Connector, Electrical - PC Board
43	332-1559	1	Strip, Marker - Terminal
44	332-1239	1	Strip, Marker - Terminal
45	332-1240	1	Strip, Marker - Terminal
	GROUND TERMINAL ASSEMBLY (Includes Items 46 Through 51)		
46	871-0010	2	Nut, Hex - Brass (#10-32)
47	850-0030	1	Washer, Lock - Spring (#10)
48	526-0205	2	Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/16" Thk)
49	853-0008	1	Washer, Lock - ET (#10)
50	856-0003	1	Washer, Lock - EIT (#10)
51	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
52	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
53	870-0053	1	Nut, Hex (#10-32)
54	850-0030	1	Washer, Lock - Spring (#10)
55	856-0003	1	Washer, Lock - EIT (#10)
56	PANEL, CONTROL - ENGINE		
	301-3267	AR	With Three Gauge Mtg. Holes
	301-3286	AR	With Four Gauge Mtg. Holes
	301-3166	AR	With Five Gauge Mtg. Holes
57	301-3253	1	Bracket, Mounting - Engine Control

* - **NOTE:** For lamp replacement order 322-0137.

Remove and discard plain red lens, install lens with legend from burned out light - lights snap in and out of panel.

£ - Optional items used with Engine Mounted Senders.

OPTIONAL WATTMETER

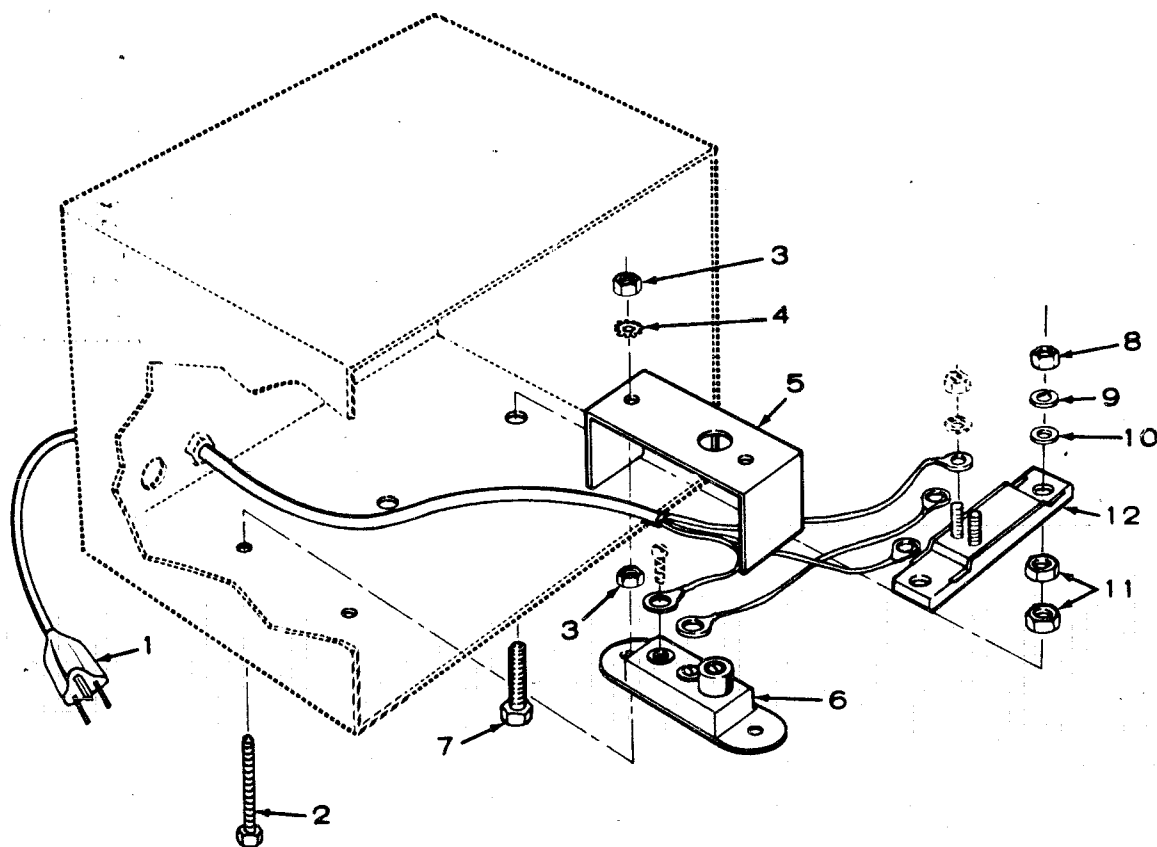


SC-1157

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0026	2	Screw, Machine - Truss Head (#10-32 x 3/8")	14	812-0063	4	Screw, Machine - Round Head (#6-32 x 1/2")
2	853-0008	2	Washer, Lock - External Tooth (#10)	15	853-0003	4	Washer, Lock - External Tooth (#6)
3	301-3476	1	Cover - Transducer Box	16	860-0006	4	Nut, Hex (#6-32)
4	508-0001	2	Grommet, Rubber (1-1/6" OD)	17	332-0609	1	Terminal, Strip
5	860-0008	8	Nut, Hex (#8-32)	18	332-0610	1	Marker, Strip
6	853-0005	8	Washer, Lock - External Tooth (#8)	19	301-3312	1	Panel, Control (Without Meters, etc.)
7	526-0003	8	Washer, Flat (11/64" ID x 3/8" OD x 1/32" Thk)	20	302-1102	1	Wattmeter (Less Replaceable Dial)
8	402-0354	4	Mount, Vibration	21	DIAL, WATTMETER (Select As Required)		
9	TRANSUCER (Select As Required)			302-1103		1	Scale 0-35 kW
	302-1082	1	60 Hertz	302-1104		1	Scale 0-50 kW
	302-1083	1	50 Hertz	302-1105		1	Scale 0-70 kW
10	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")	302-1106		1	Scale 0-90 kW
11	402-0070	4	Mount, Vibration	302-1107		1	Scale 0-115 kW
12	301-3477	1	Box, Transducer	302-1108		1	Scale 0-160 kW
13	815-0350	6	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")	302-1109		1	Scale 0-180 kW
				302-1110		1	Scale 0-200 kW

973-0223 (NOVEMBER 1980)

OPTIONAL CONTROL HEATER INSTALLATION

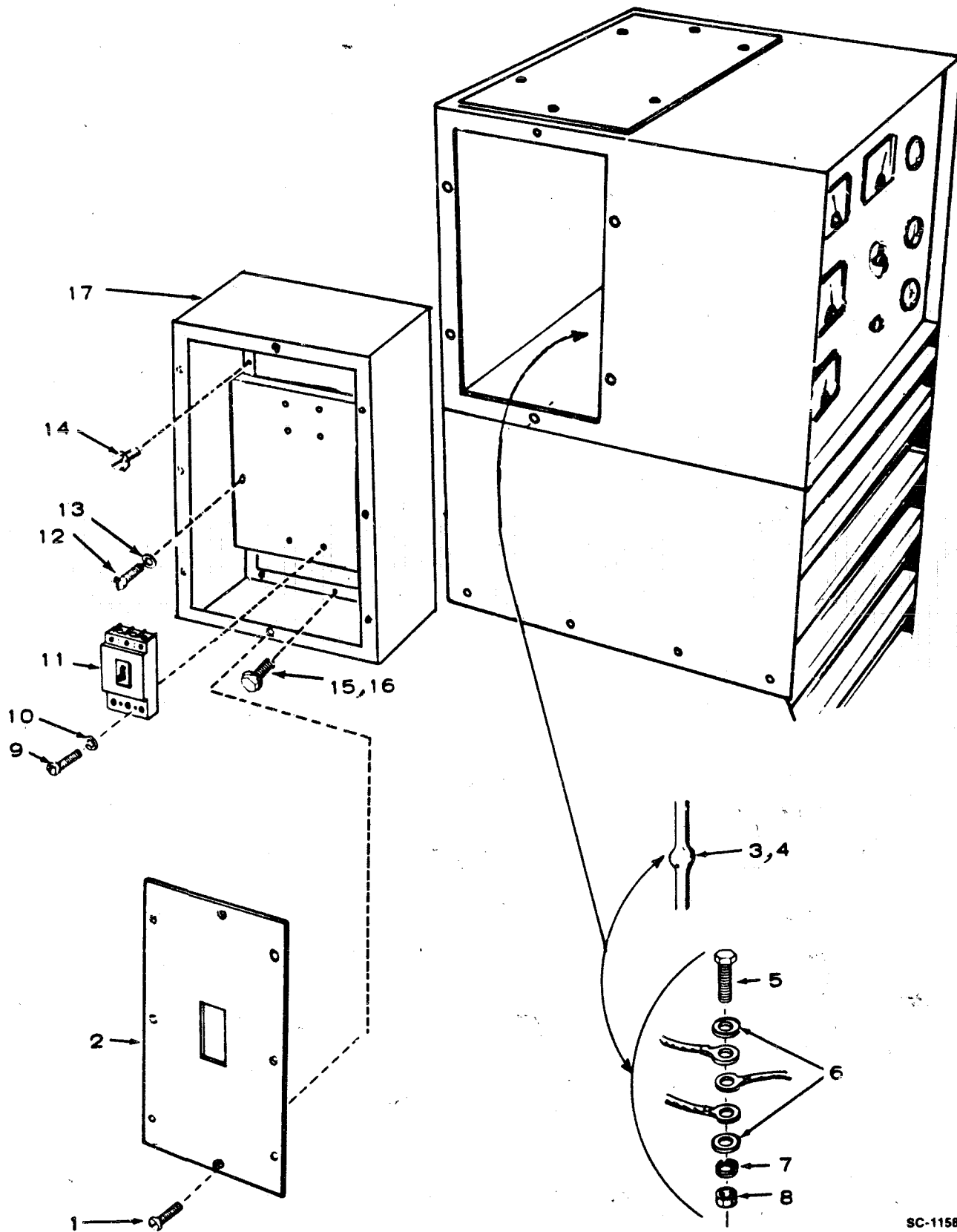


SC-1156

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	335-0110	1	Cable, Electrical (3 Wire)
2	812-0090	2	Screw, Machine - Round Head (#6-32 x 2-1/4")
3	860-0006	4	Nut, Hex (#6-32)
4	856-0001	2	Washer, Lock - EIT (#6)
5	301-1886	1	Cover, Thermostat
6	309-0128	1	Thermostat - Adjustable
7	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
8	862-0001	2	Nut, Hex (1/4-20)
9	850-0040	2	Washer, Lock - Spring (1/4)
10	526-0052	2	Washer, Flat (17/64" ID x 9/16" OD x 1/16" Thk)
11	862-0015	4	Nut, Hex (5/16-18) - Used As Spacers
12	333-0151	1	Heater - 75 Watt, 120 VAC; 300 Watt, 240 VAC

973-0223 (NOVEMBER 1980)

OPTIONAL CIRCUIT BREAKER



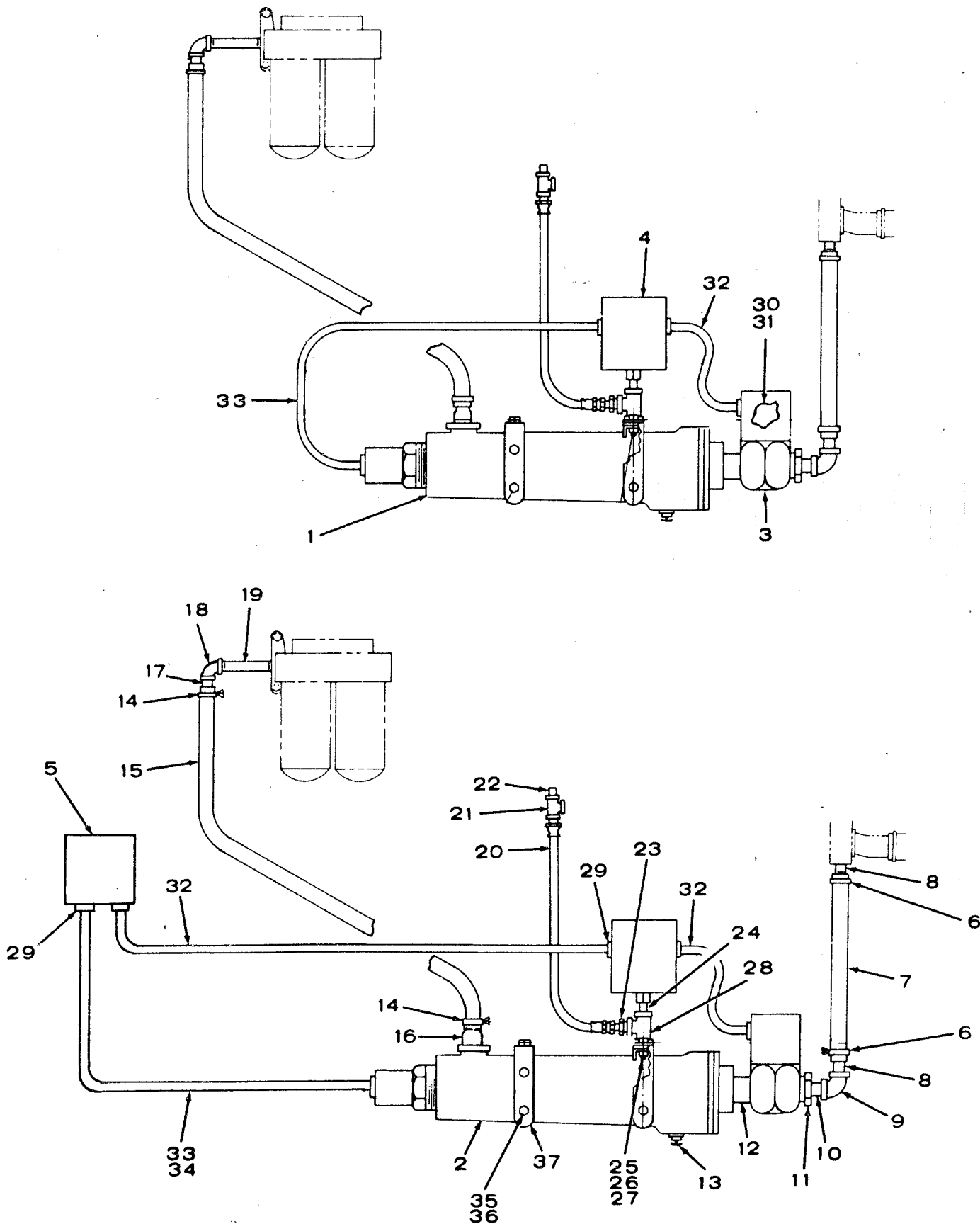
SC-1158

OPTIONAL CIRCUIT BREAKER

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0350	8	Screw, Tapping - Hex Washer Head (#10-32 x 3/8)
2	301-3272	1	Cover - Circuit Breaker Box
3	SLEEVING, INSULATION - SHRINKABLE (SELECT AS REQUIRED)		
	898-0863	3/4" ID	
	898-0865	1" ID	
	898-0875	1-1/2" ID	
	898-0869	2" ID	
4	SLEEVING, INSULATION — FIBER GLASS (SELECT AS REQUIRED)		
	898-0974	3/4" ID	
	898-0976	1" ID	
5	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")
6	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)
7	850-0045	5	Washer, Lock - Spring (5/16")
8	862-0015	5	Nut, Hex (5/16-18)
9	SCREW, MACHINE - ROUND HEAD (SELECT AS REQUIRED)		
	812-0156	4	1/4-20 x 1-1/2"
	812-0157	4	1/4-20 x 1-3/4"
	812-0182	4	5/16-18 x 1-1/2"
	812-0183	4	5/16-18 x 1-3/4"
10	WASHER, LOCK - SPRING (SELECT AS REQUIRED)		
	850-0040	4	1/4"
	850-0045	4	5/16"

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
11	CIRCUIT BREAKER (SELECT AS REQUIRED)		
	320-0269	1	225 AMP, 3PH, 200/346-220/380 - 277/480 - 347/600 VAC
	320-0401	1	300 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC
	320-0405	1	400 AMP, 3 PH, 200/346 VAC
	320-0420	1	300 AMP, 1 PH, 120/240 VAC
	320-0421	1	350 AMP, 1 PH, 120/240 VAC
	320-0422	1	250 AMP, 3 PH, 120/240 VAC
	320-0423	1	300 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0424	1	100 AMP, 3 PH, 347/600 VAC
	320-0425	1	150 AMP, 3 PH, 200/346 - 277/480 - 347/600 VAC
	320-0426	1	175 AMP, 3 PH, 200/346 - 220/380 - 277/480 - 347/600 VAC
	320-0446	1	125 AMP, 3 PH, 347/600 VAC
	320-0447	1	200 AMP, 3 PH, 200/346 - 220/380 - 277/480 - 347/600 VAC
	320-0448	1	350 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0449	1	400 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0518	1	700 AMP, 3 PH, 120/208 VAC
	320-0523	1	350 AMP, 3 PH, 200/346 - 220/380 VAC
	320-0598	1	500 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0599	1	600 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0626	1	250 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC
	320-0705	1	400 AMP, 1 PH, 120/240 VAC
12	813-0103	2	Screw, Machine - Round Head (#10-32 x 3/4")
13	850-0030	2	Washer, Lock - Spring (#10)
14	815-0350	3	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")
15	821-0010	1	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
16	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
17	301-3271	1	Box - Circuit Breaker

OPTIONAL ENGINE COOLANT HEATER INSTALLATION



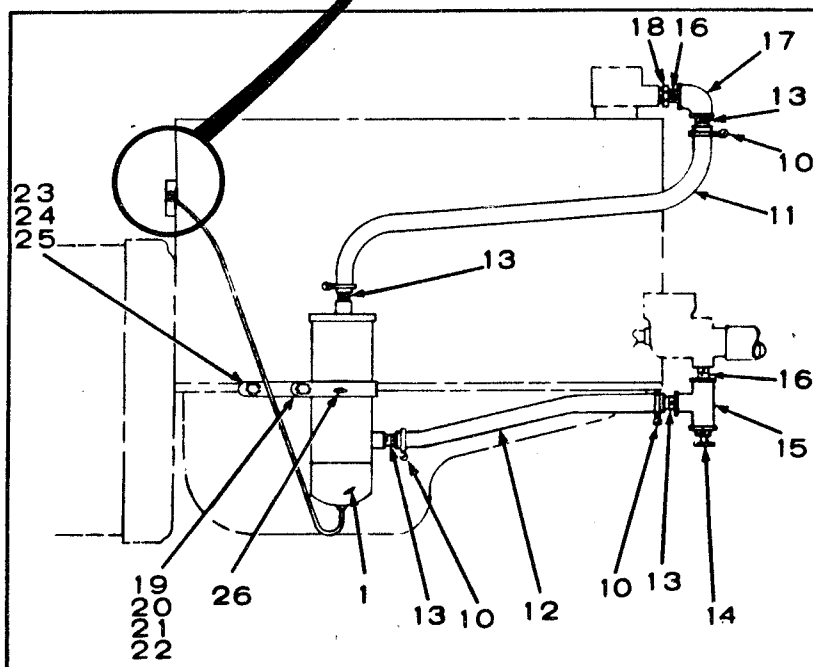
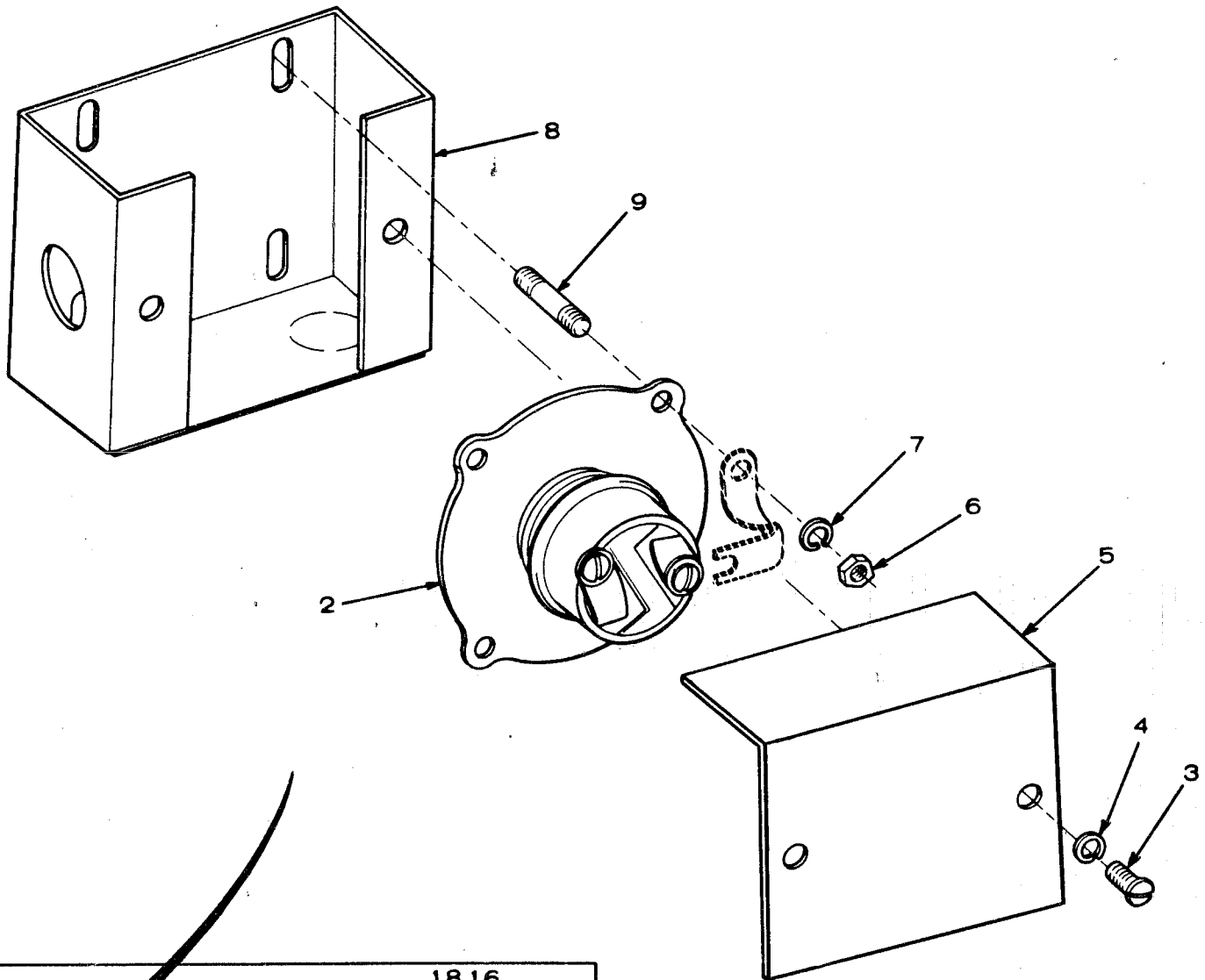
CS-1060

973-0223 (NOVEMBER 1980)

OPTIONAL ENGINE COOLANT HEATER INSTALLATION

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	ENGINE COOLANT HEATER INSTALLATION			16	505-0759	1	Adapter, Pipe to Hose (1" NPT x 1" Hose)
	179-2082	1	115 Volt, 1 Phase	17	505-0324	1	Nipple, Pipe - Half (3/4" NPT x 2")
	179-2105	1	208 Volt, 1 Phase	18	505-0132	1	Elbow, Pipe (3/4" NPT x 90 Deg)
	179-2088	1	208 Volt, 3 Phase	19	505-0341	1	Nipple, Pipe (3/4" NPT x 5")
	179-2071	1	240 Volt, 1 Phase	20	501-0227	1	Line, Fuel - Flexible (24")
	179-2095	1	480 Volt, 1 Phase	21	505-0059	1	Tee, Pipe (1/8" NPT)
	179-2126	1	480 Volt, 3 Phase	22	505-0098	1	Nipple, Pipe - Close (1/8" NPT x 3/4")
1	HEATER, ENGINE COOLANT			213	505-0007	1	Bushing, Reducer (1/4" NPT x 1/8" NPT)
	333-0094	1	115 Volt, 1 Phase (2500 Watts)	24	505-0099	1	Nipple, Pipe - Close (1/4" NPT x 7/8")
	333-0169	1	208 Volt, 1 Phase (2500 Watts)	25	800-0007	4	Screw, Cap - Hex Head (1/4-20 x 1")
	333-0131	1	240 Volt, 1 Phase (2500 Watts)	26	862-0001	4	Nut, Hex (1/4-20)
2	HEATER, ENGINE COOLANT			27	850-0040	4	Washer, Lock - Spring (1/4")
	333-0165	1	208 Volt, 3 Phase (2500 Watts)	28	333-0142	1	Support, Mounting - Pressure Switch
	333-0166	1	480 Volt, 1 Phase (2500 Watts)	29	331-0027	AR	Clamp, Cable (3/8" OD Cable)
	333-0172	1	480 Volt, 3 Phase (2500 Watts)	30	323-0957	2	Connector, Wire Nut (Used on Black Leads)
3	309-0304	1	Switch, Thermostatic	31	332-0149	2	Terminal, Lug (Used on White Leads)
4	309-0307	1	Switch, Oil Pressure	32	334-0130	AR	Cord, Electrical Bulk - 2 - #14, Type SO, 600 Volt
5	CONTACTOR			33	334-0142	AR	Cable, Electrical Bulk - 3 - #12, Type SO, 600 Volt
	307-1460	1	240 Volt, 30 Amp (Part of 179-2088)	34	334-0143	AR	Cable, Electrical Bulk - 4 - #14, SO, 600 Volt
	307-1164	1	480 Volt, 30 Amp (Part of 179-2095; 179-2126)	35	821-0016	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
6	503-0183	2	Clamp, Hose	36	870-0257	2	Nut, Self-locking, Hex (5/16-18)
7	503-0387	1	Hose, Rubber (5/8" ID x 10-1/4" Lg)	37	130-1191	2	Bracket, Mounting - Heater
8	505-0135	2	Nipple, Pipe - Half (3/8" NPT x 1-1/2")				
9	505-0039	1	Elbow, Pipe (3/8" NPT x 90 Deg)				
10	505-0101	1	Nipple, Pipe - Close (3/8" NPT x 1")				
11	505-0455	1	Bushing, Reducer (1" NPT x 3/8" NPT)				
12	505-0004	1	Nipple, Pipe - Close (1" NPT x 1-1/2")				
13	504-0003	1	Cock, Drain (1/4" NPT)				
14	503-0429	2	Clamp, Hose				
15	503-0848	1	Hose, Rubber (1" ID x 36" Lg)				

OPTIONAL ENGINE COOLANT HEATER INSTALLATION



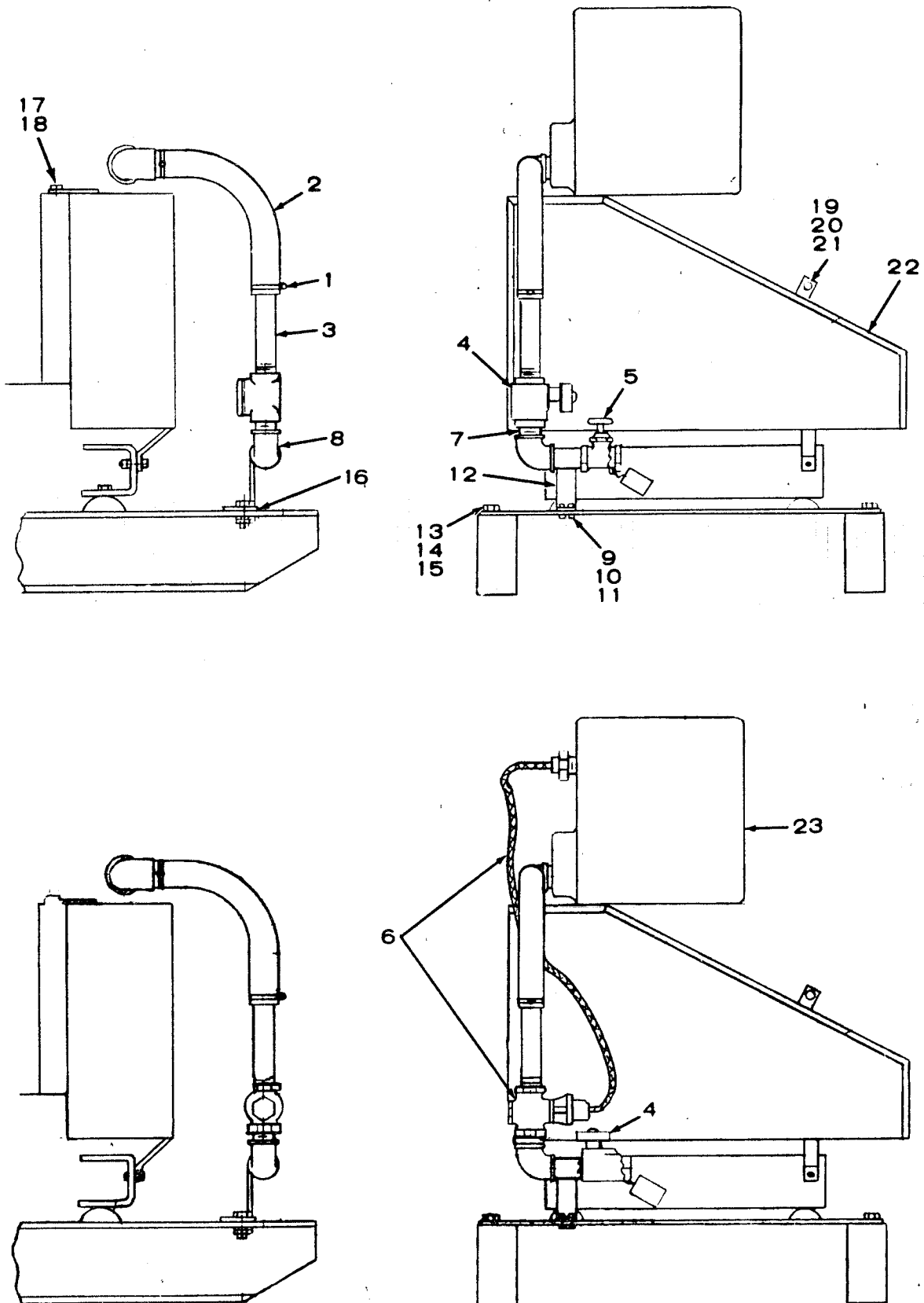
CS-1061

973-0223 (NOVEMBER 1980)

OPTIONAL COOLING SYSTEM (WITH HEAT EXCHANGER)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	ENGINE COOLANT HEATER INSTALLATION		
	179-0326	1	120 Volt, 1 Phase
	179-2000	1	208/240 Volt, 1 Phase
1	HEATER, ENGINE COOLANT		
	333-0053	1	120 Volt, 2000 Watts
	333-0073	1	208/240 Volt, 1875-2000 Watts
2	SWITCH, THERMOSTATIC		
	309-0106	1	120 Volt, 25 Amp, SPST (120 Deg Close, 130 Deg Open) Part of 179-0326
	309-0256	1	120/250 Volt, 40-25 Amp, DPST (100 Deg Close, 130 Deg Open) Part of 179-2000
3	812-0075	2	Screw, Machine - Roundhead (#8-32 x 1/4")
4	850-0025	2	Washer, Lock - Spring (#8)
5	COVER, THERMOSTAT BOX		
	333-0012	1	Part of 179-0326
	333-0056	1	Part of 179-2000
6	870-0053	2	Nut, Hex (#10-32)
7	850-0030	2	Washer, Lock - Spring (#10)
8	BOX, THERMOSTAT		
	333-0012	1	Part of 179-0326
	333-0057	1	Part of 179-2000
9	STUD		
	520-0446	2	#10-32 x 3/4" - Part of 179-0326
	332-0672	2	#10-32 x 1" - Part of 179-2000
10	503-0183	4	Clamp, Hose
11	503-0386	AR	Hose, Rubber - Bulk (5/8" ID) (44" Required)
12	503-0800	1	Hose, Rubber (5/8" ID x 19" Lg)
13	505-0135	4	Nipple, Pipe (3/8" NPT x 1-1/2")
14	504-0028	1	Cock, Drain (3/8" NPT)
15	505-0060	1	Tee, Pipe (3/8" NPT)
16	505-0101	2	Nipple, Pipe - Close (3/8" NPT x 1")
17	505-0039	1	Elbow, Pipe - 90 Deg (3/8" NPT)
18	505-0455	1	Bushing, Reducer (1" NPT to 3/8" NPT)
19	800-0031	1	Screw, Cap - Hex Head (5/16-18 x 1-1/2")
20	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)
21	856-0008	2	Washer, Lock - EIT (5/16")
22	862-0015	1	Nut, Hex (5/16-18)
23	800-0091	1	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
24	850-0050	1	Washer, Lock - Spring (1/2")
25	856-0013	1	Washer, Lock - EIT (1/2")
26	130-0755	1	Bracket, Mounting

OPTIONAL COOLING SYSTEM (WITH HEAT EXCHANGER)



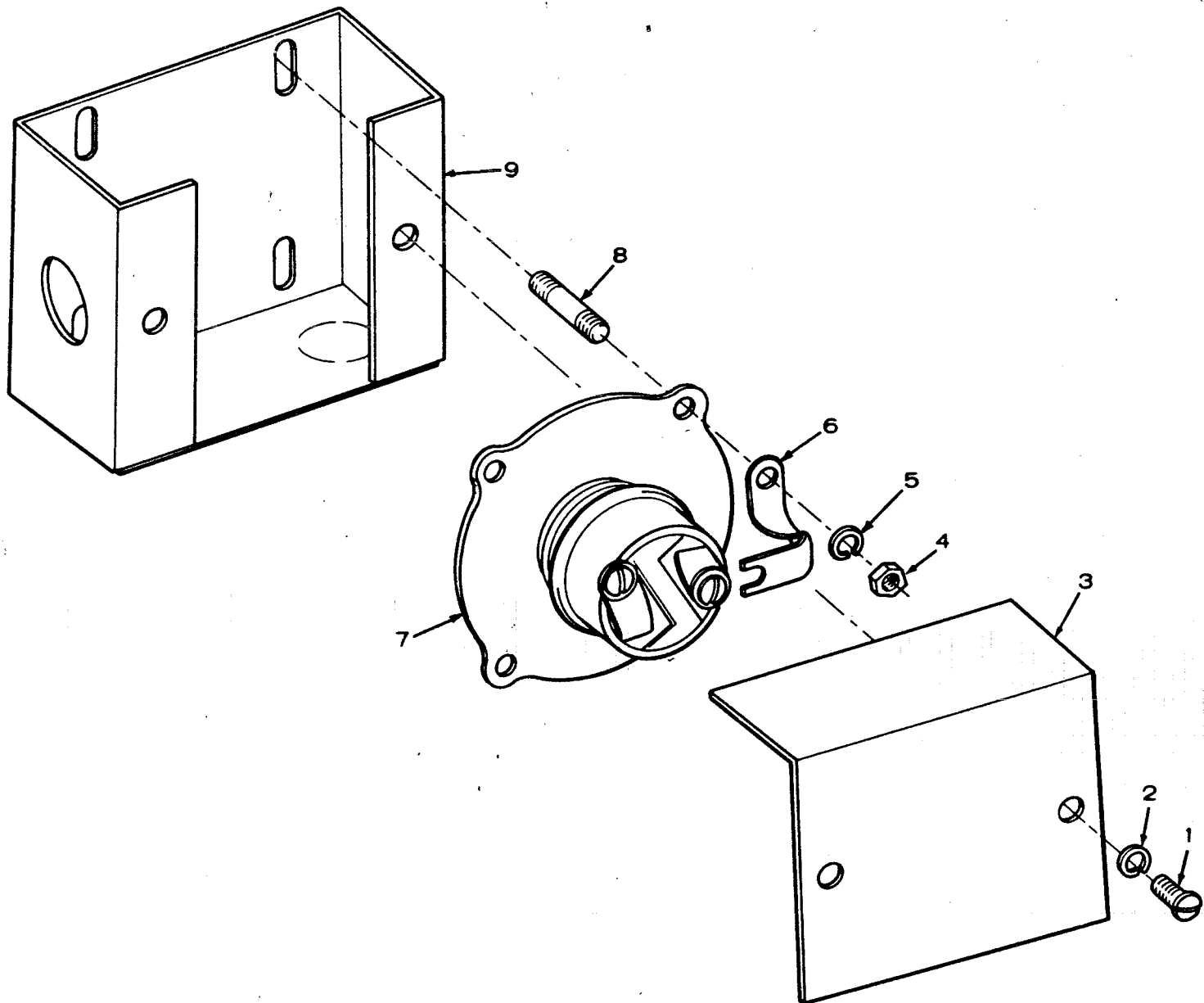
CS-1062

973-0223 (NOVEMBER 1980)

OPTIONAL COOLING SYSTEM (WITH HEAT EXCHANGER)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
HEAT EXCHANGER COOLING SYSTEM INSTALLATION (All Parts Common Except as Marked)			
	179-1002	1	Without Coolant Temperature Regulator
	179-1003	1	With Coolant Temperature Regulator
1	503-0465	2	Clamp, Hose
2	503-0829	1	Hose, Rubber (1-1/2" ID x 17" Lg)
4	307-0836	1	Valve, Control - Solenoid
5	504-0051	1	Valve, Globe (1-1/4" NPT) - Part of 179-1002
6	309-0243	1	Valve, Control - Temperature Regulating (1-1/4" NPT) - Part of 179-1003
7	505-0177	1	Nipple, Pipe - Close (1-1/4" NPT x 1-5/8" NPT)
8	505-0042	1	Elbow, Pipe - 90 Deg (1-1/4" NPT)
9	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
10	850-0040	2	Washer, Lock - Spring (1/4")
11	862-0001	2	Nut, Hex (1/4-20)
12	110-1168	1	Bracket and Nipple Assembly
13	800-0092	2	Screw, Cap - Hex Head (1/2-13 x 1-1/2")
14	850-0060	2	Washer, Lock - Spring (1/2")
15	862-0005	2	Nut, Hex (1/2-13)
16	130-0875	1	Plate, Mounting
17	800-0026	1	Screw, Cap - Hex Head (5/16-18 x 3/4")
18	850-0045	1	Washer, Lock - Spring (5/16")
19	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
20	850-0040	2	Washer, Lock - Spring (1/4")
21	862-0001	1	Nut, Hex (1/4-20)
22	191-0893	1	Guard, Belt
23		REF	Tank, Heat Exchanger - Supplied With Engine (Modify as Necessary)

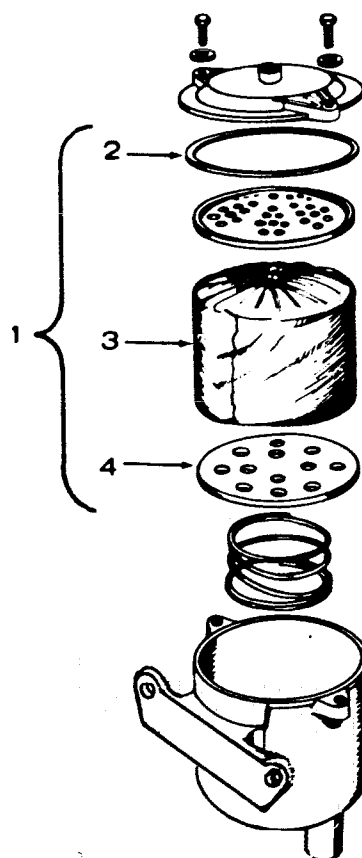
OPTIONAL LOW ENGINE TEMPERATURE SWITCH INSTALLATION



CS-1063

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
		1	Low Engine Temperature Switch Installation
1	812-0075	2	Screw, Machine - Round Head (#8-32 x 1/4")
2	850-0025	2	Washer, Lock - Spring (#8)
3	333-0013	1	Cover, Thermostat Box
4	870-0053	2	Nut, Hex (#10-32)
5	850-0030	2	Washer, Lock - Spring (#10)
6	160-0428	1	Strap, Ground
7	309-0029	1	Switch, Thermostatic - 120/240 Volt, 25 Amp (70 Deg close, 90 Deg open)
8	520-0446	2	Stud (#10-32 x 3/4")
9	333-0012	1	Box, Thermostat Mounting

OPTIONAL ENGINE COOLANT FILTER ASSEMBLY



CS-1059

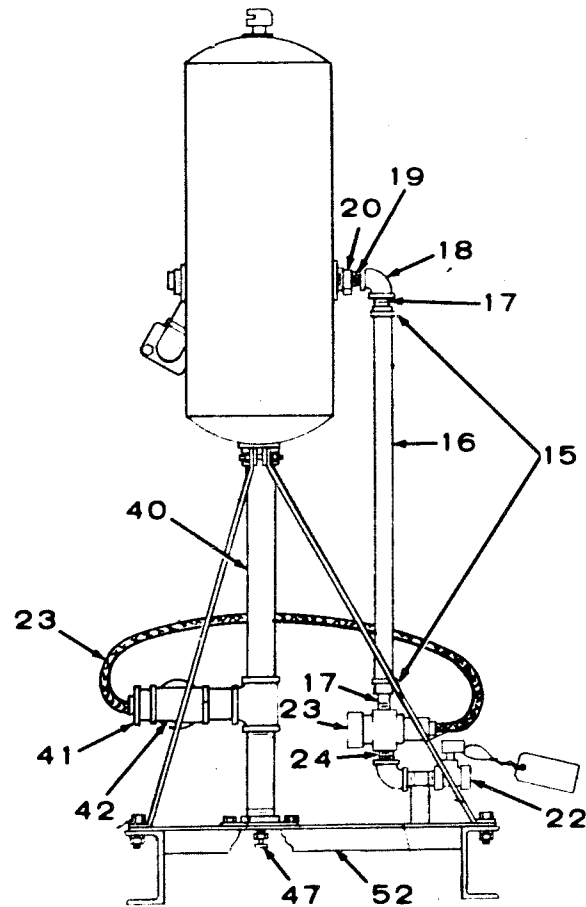
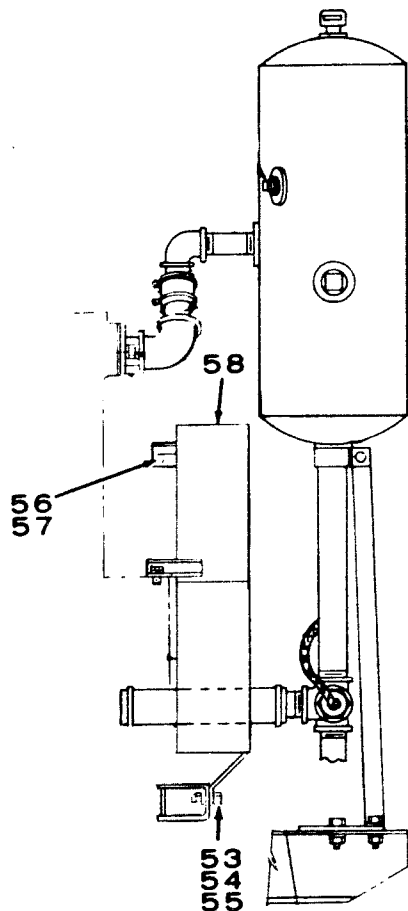
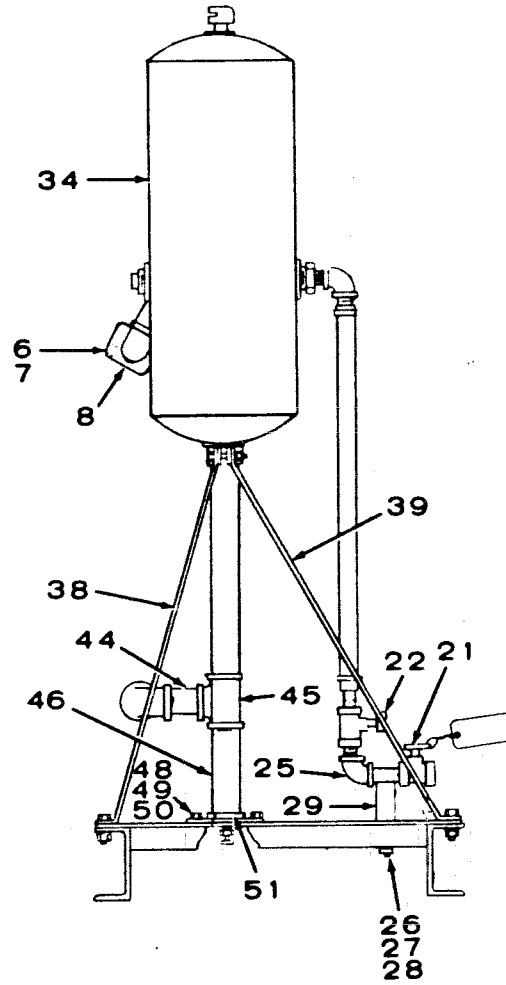
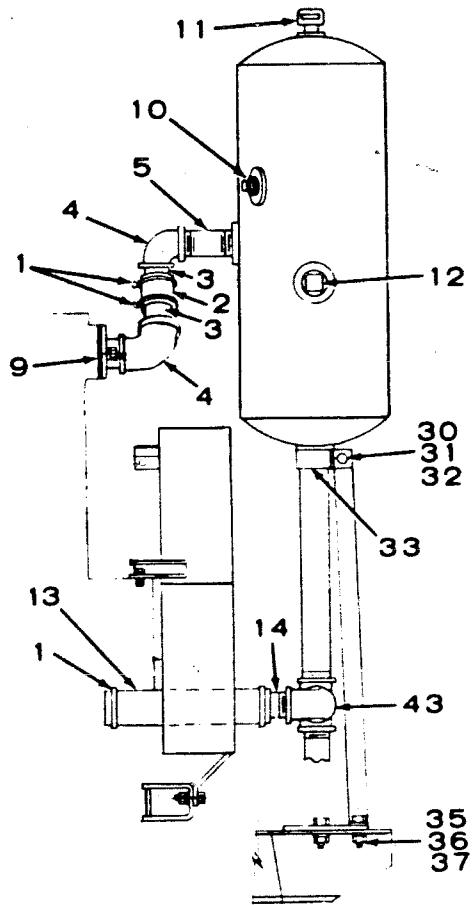
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	FILTER ASSEMBLY, ENGINE COOLANT		
	130-0462	1	15 to 30 Gallon Capacity (Replacement Items Marked £)
	130-0497	1	5 to 10 Gallon Capacity (Replacement Items Marked †)
1	KIT REPLACEMENT - FILTER (Includes Items 2 Thru 4)		
	130-0769	1	£Original Equipment (Water Coolant)
	130-0770	1	£Special (Perm. Anti-Freeze Coolant)
	130-0771	1	†Original Equipment (Water Coolant)
	130-0772	1	†Special (Perm. Anti-Freeze Coolant)
2	GASKET, COVER		
	130-0777	1	£
	130-0778	1	†
3	ELEMENT, FILTER		
	130-0773	1	£Chromate (Water Coolant)
	130-0774	1	£Special (Perm. Anti-Freeze Coolant)
4	PLATE, SACRIFICIAL		
	130-0779	1	£
	130-0780	1	†

£ - **NOTE:** Used on 130-0462 Filter Assembly.

† - **NOTE:** Used on 130-0497 Filter Assembly.

973-0223 (NOVEMBER 1980)

OPTIONAL COOLING SYSTEM (WITH STANDPIPE)



CS-1064

973-0223 (NOVEMBER 1980)

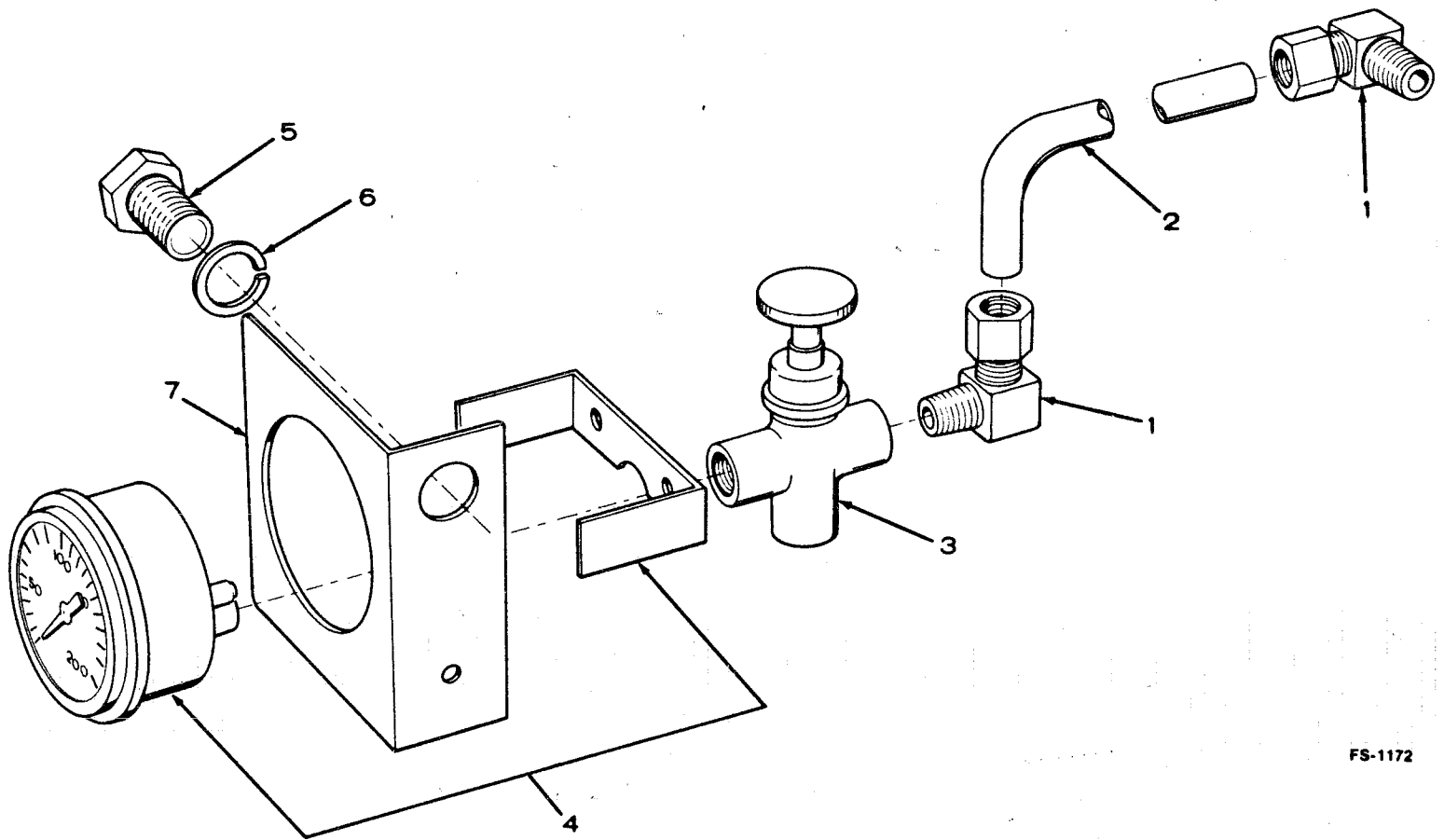
OPTIONAL COOLING SYSTEM (WITH STANDPIPE)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
STANDPIPE COOLING SYSTEM INSTALLATION (All Parts Common Except As Marked)			
	179-0430	1	Without Coolant Temperature Regulator
	179-0431	1	With Coolant Temperature Regulator
1	503-0354	4	Clamp, Hose
2	503-0933	1	£Hose, Rubber (2-3/8" ID x 11" Lg)
3	505-0204	2	Nipple, Pipe - Half (2" NPT x 2")
4	505-0175	2	Elbow, Pipe - 90 Deg (2" NPT)
5	505-0401	1	Nipple, Pipe (2" NPT x 6")
6	800-0071	2	Screw, Cap - Hex Head (7/16-14 x 1")
7	850-0055	2	Washer, Lock - Spring (7/16")
8	130-0878	1	Plate, Outlet
9	130-0880	1	Gasket - Outlet Plate
10	505-0140	1	Plug, Pipe - Square Head (1" NPT)
11	504-0062	1	Valve, Vacuum Relief
12	505-0949	1	Plug, Pipe - Square Socket Head (1-1/4" NPT)
13			£Hose, Rubber (2-3/8" ID x 7" Lg)
14	505-0204	1	Nipple, Pipe - Half (2" NPT x 2")
15	503-0189	2	Clamp, Hose
16		1	†Hose, Rubber (1-1/4" ID x 36")
17	505-0330	2	Nipple, Pipe - Half (1" NPT x 2")
18	505-0041	1	Elbow, Pipe - 90 Deg (1" NPT)
19	505-0004	1	Nipple, Pipe - Close (1" NPT x 1-1/2")
20	505-0023	1	Bushing, Reducer (1-1/4" NPT x 1" NPT)
21	504-0090	1	Valve, Globe - Part of 179-0430
22	307-1135	1	Valve, Control - Solenoid
23	309-0242	1	Valve, Control - Temperature Regulating - Part of 179-0431
24	505-0004	1	Nipple, Pipe - Close (1" NPT x 1-1/2")
25	505-0041	1	Elbow, Pipe - 90 Deg (1" NPT)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
26	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
27	850-0040	2	Washer, Lock - Spring (1/4")
28	862-0001	2	Nut, Hex (1/4-20)
29	130-0797	1	Nipple, Support Assembly
30	800-0051	1	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
31	850-0050	1	Washer, Lock - Spring (3/8")
32	862-0003	1	Nut, Hex (3/8-16)
33	130-0871	1	Clamp, Loop
34	130-0425	1	Tank, Standpipe
35	800-0092	2	Screw, Cap - Hex Head (1/2-13 x 1-1/2")
36	850-0060	2	Washer, Lock - Spring (1/2")
37	862-0005	2	Nut, Hex (1/2-13)
38	130-0870	1	Brace, Support - Standpipe
39	130-0869	1	Brace, Support - Standpipe
40	505-0417	1	Nipple, Pipe (2" NPT x 21-1/2")
41	505-0351	1	Bushing, Reducer (2" NPT x 3/4" NPT) - Part of 179-0431
42	505-0374	1	Tee, Pipe (2" NPT) - Part of 179-0431
43	505-0175	1	Elbow, Pipe - 90 Deg. (2" NPT) - Part of 179-0430
44	505-0172	1	Nipple, Pipe - Close (2" NPT x 2")
45	505-0374	1	Tee, Pipe (2" NPT)
46	505-0748	1	Nipple, Pipe (2" NPT x 9")
47	504-0006	1	Cock, Drain
48	800-0092	6	Screw, Cap - Hex Head (1/2-13 x 1-1/2")
49	850-0060	6	Washer, Lock - Spring (1/2")
50	862-0005	6	Nut, Hex (1/2-13)
51	130-0442	1	Base, Standpipe
52	130-0857	1	Support, Mounting - Standpipe
53	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
54	850-0040	2	Washer, Lock - Spring (1/4")
55	862-0001	2	Nut, Hex (1/4-20)
56	800-0090	2	Screw, Cap - Hex Head (1/2-13 x 1")
57	850-0060	2	Washer, Lock - Spring (1/2")
58	191-0880	1	Guard, Belt

£ - #503-0324 Bulk Rubber Hose (2-3/8" ID)
† - #503-0361 Bulk Rubber Hose (1-1/4" ID)

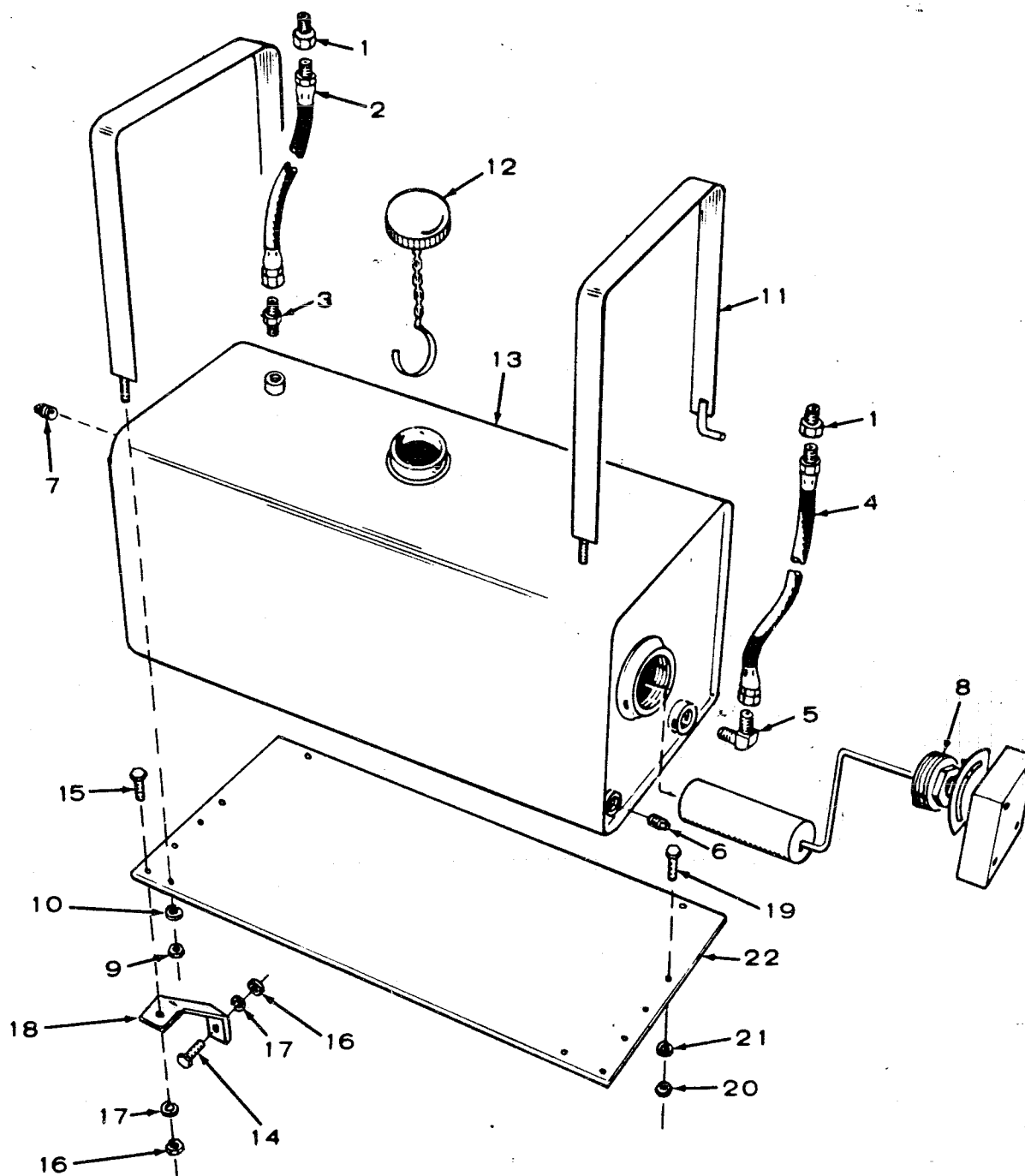
OPTIONAL FUEL PRESSURE GAUGE INSTALLATION



FS-1172

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
FUEL PRESSURE GAUGE INSTALLATION			
	539-0429	1	0 to 200 lbs. Range
1	502-0034	2	Elbow with Compression Nut & Ring - Brass (1/8" NPT x 3/16" Tube)
2	370-4003	1	Tube, Copper (3/16" OD x .030 Thk x 72")
3	504-0064	1	Valve, Gate (1/8" NPT)
4	193-0128	1	Gauge, Pressure with Bracket and Attaching Hardware
5	800-0130	1	Screw, Cap - Hex Head (5/8-11 x 1")
6	850-0070	1	Washer, Lock - Spring (5/8")
7	193-0029	1	Bracket, Mounting - Gauge

OPTIONAL DAY FUEL TANK INSTALLATION



FS-1170

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
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DAY FUEL TANK INSTALLATION

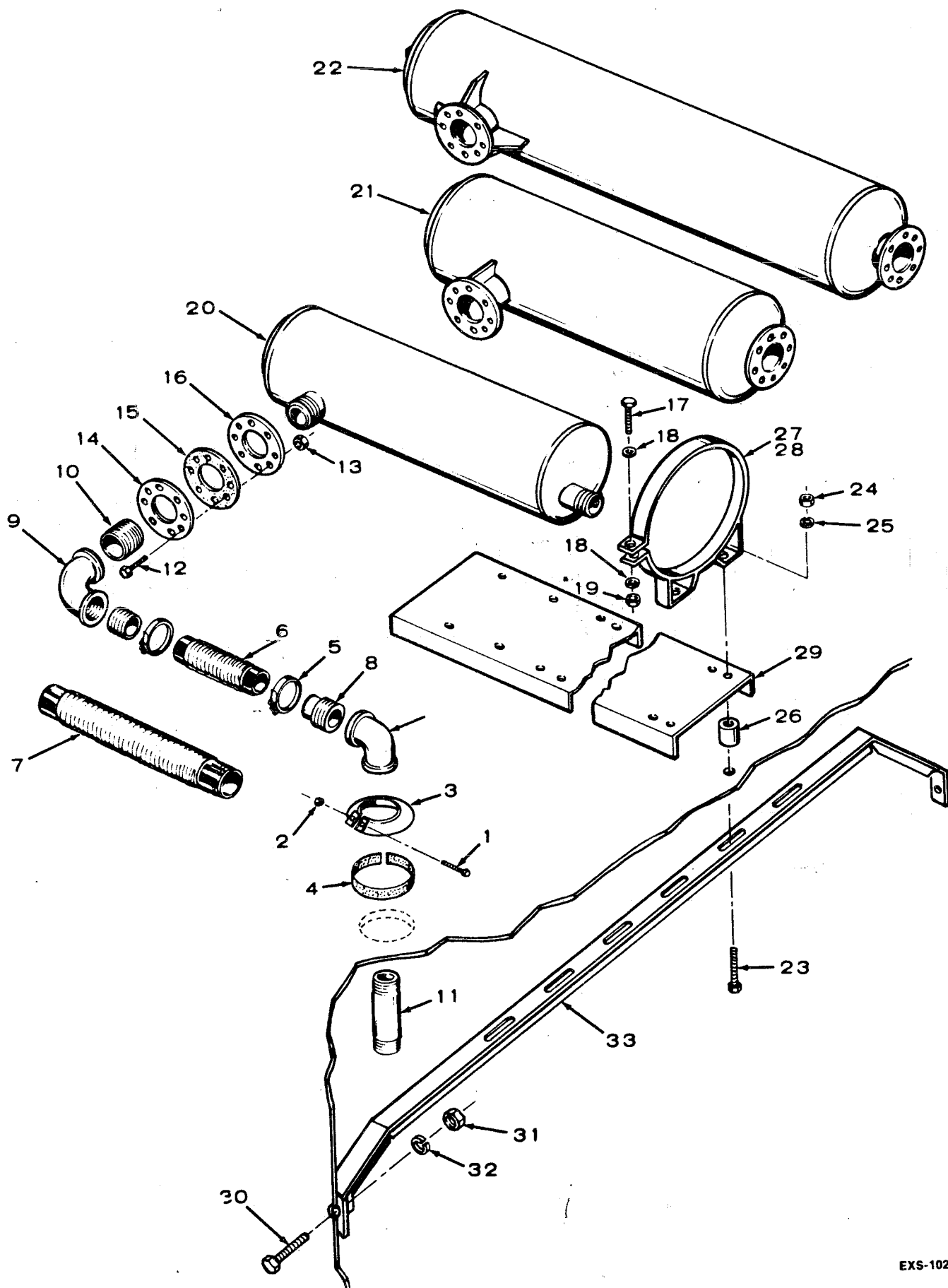
1	502-0143	2	Adapter, Reducer (1/4 to 1/8 NPT)
2	501-0085	1	Line, Fuel - Flexible (Injector Return to Tank)
3	502-0173	1	Connector, Pipe - Male
4	501-0083	1	Line, Fuel - Flexible (Tank to Filters)
5	502-0268	1	Elbow, Pipe - 90 Deg. Brass (1/2" NPT)
6	505-0110	1	Plug, Pipe - Square Head (3/8" NPT)
7	505-0056	1	Plug, Pipe - Square Head (1/2" NPT)
8	415-0170	1	Switch, Fuel Level
9	862-0001	2	Nut, Hex (1/4-20)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
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10	850-0040	2	Washer, Lock - Spring (1/4")
11	415-0331	2	Strap, Hold-down
12	159-0020	1	Cap, Fuel Tank
13	415-0322	1	Tank, Fuel (8.5 Gal)
14	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
15	800-0005	2	Screw, Cap - Hex Head (1/4-20 x 3/4")
16	862-0001	4	Nut, Hex (1/4-20)
17	850-0040	4	Washer, Lock - Spring (1/4")
18	415-0329	2	Brace, Tank Support
19	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
20	862-0001	2	Nut, Hex (1/4-20)
21	850-0040	2	Washer, Lock - Spring (1/4")
22	415-0330	1	Plate, Mounting - Fuel Tank

973-9223 (NOVEMBER 1980)

OPTIONAL EXHAUST MUFFLER INSTALLATION (HOUSED SETS)



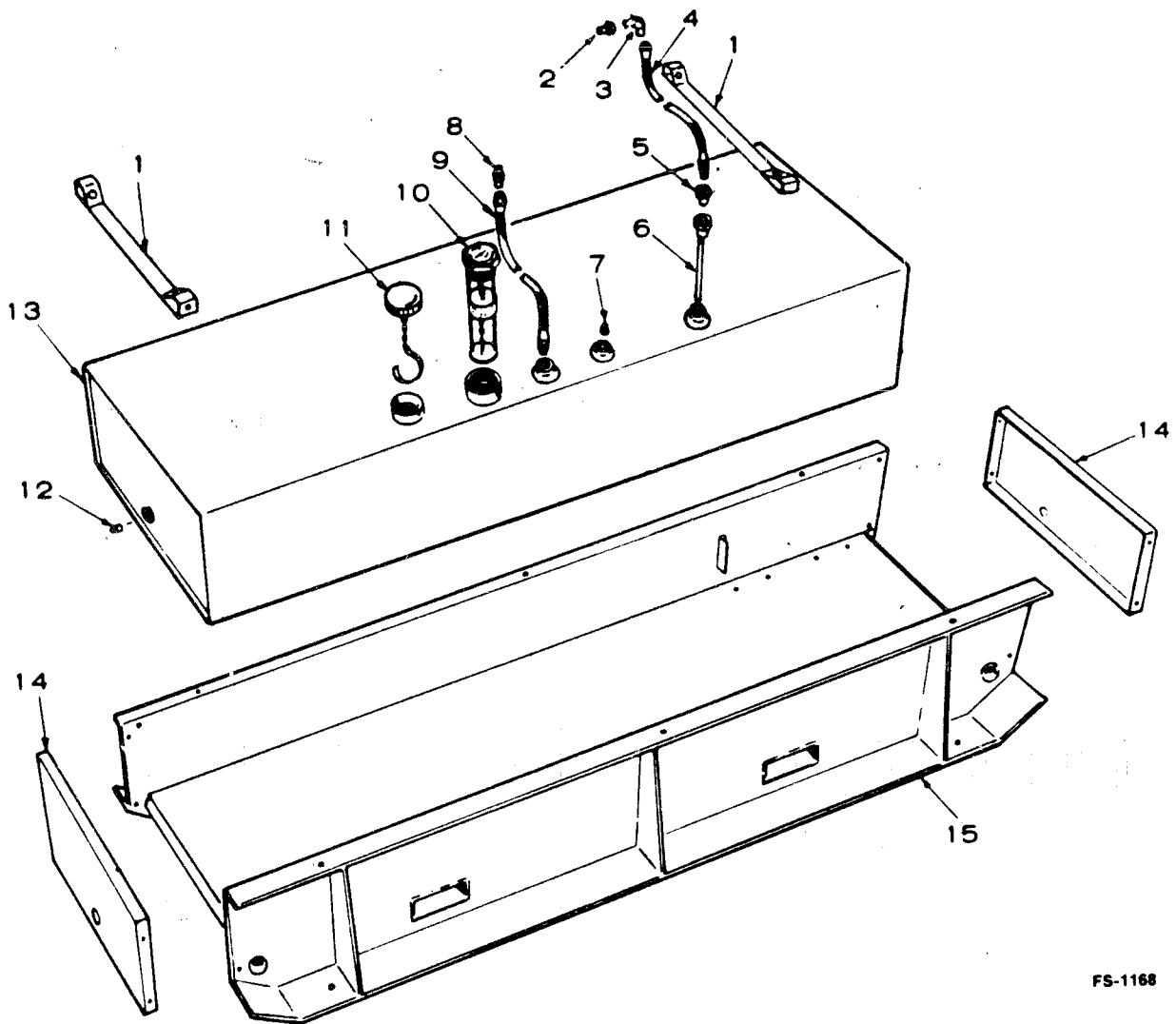
EXS-1028

973-0223 (NOVEMBER 1980)

OPTIONAL EXHAUST MUFFLER INSTALLATION (HOUSED SETS)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
EXHAUST MUFFLER INSTALLATION				14	155-0658	1	Flange, Pipe - Companion (5" NPT)
HOUSED SETS				15	155-0675	1	Gasket, Flange - Asbestos (5" ID)
Industrial Type Muffler				16	155-0658	1	Flange, Pipe - Companion (5" NPT) - P/O 179-1556, 1572, 1609
179-0391	1	Includes CRES Horizontal Flex Tube		17	SCREW, CAP -HEX HEAD (Select as Required)		
179-1517	1	Includes SST Horizontal Flex Tube		800-0035	3	5/16-18 x 2-1/2"	
Residential Type Muffler				800-0036	3	5/16-18 x 3/4"	
179-1572	1	Includes CRES Horizontal Flex Tube		800-0037	3	5/16-18 x 3"	
OUTDOOR SHELTERED SETS				18	526-0113	6	Washer, Flat (11/32" ID x 1" OD x 3/32" Thk)
Industrial Type Muffler				19	870-0257	3	Nut, Self-locking, Hex Washer Head (5/16-18)
179-1548	1	Includes CRES Horizontal Flex Tube		20	155-1152	1	Muffler, Exhaust - Industrial (12" OD x 60" Lg) - P/O 179-0391, 1517, 1548
Residential Type Muffler				21	155-1600	1	Muffler, Exhaust - Residential (16" OD x 60" Lg) - P/O 179-1572
	1	Design Pending		22	155-1543	1	Muffler, Exhaust - Critical (16" OD x 74" Lg) - P/O 179-1556, 1609
Critical Type Muffler				23	SCREW, CAP — HEX HEAD (Select as Required)		
179-1609	1	Includes CRES Horizontal Flex Tube		800-0028	6	5/16-18 x 1"	
1	813-0105	2	Screw, Machine - Round Head (#10-32 x 1")	800-0037	6	5/16-18 x 3"	
2	870-0188	2	Nut, Self-locking, Hex (#10-32)	24	870-0048	6	Nut, Self-locking, Hex (5/16-18)
3	155-1425	1	Shield, Rain	25	850-0045	6	Washer, Lock - Spring (5/16")
4	895-0007	AR	Asbestos, Strip (2" x 1/16" Thk)	26	SPACER (Select as Required)		
5	503-0605	2	Clamp, Loop	526-0172	6	1/2" ID x 2-1/4" OD x 1/4" Thk	
6	TUBE, EXHAUST - FLEXIBLE, CRES			155-1430	6	1/2" ID x 1-1/2" OD x 2" Thk	
155-1293	1	5" ID x 33" Lg (P/O 179-1548)		27	140-0752	3	Band, Mounting (12" ID) P/O 179-0391, 1517, 1548
155-1456	1	5" ID x 16" Lg (P/O 179-1572)		28	140-0799	3	Band, Mounting (16" ID) P/O 179-1556, 1572, 1609
155-1483	1	5" ID x 19" Lg (P/O 179-0391, 1556)		29	HEAT SHIELD		
7	155-0779	1	Tube, Exhaust - Flexible SST, (5" ID x 36" Lg) (P/O 179-1517)	155-1154	1	9" x 56" - P/O 179-0391, 1517, 1548	
8	155-1275	2	Nipple, Pipe - Half, Modified (5" NPT)	155-1545	1	16" x 72" - P/O 179-1556, 1609	
9	505-0665	2	Elbow, Pipe - 90 Deg (5" NPT)	155-1647	1	16" x 54" - P/O 179-1572	
10	505-0664	1	Nipple, Pipe - Close 5" NPT x 4-1/2"	30	800-0028	AR	Screw, Cap - Hex Head 5/16-18 x 1"
11	NIPPLE, PIPE (5" NPT)			31	870-0048	AR	Nut, Self-locking, Hex (5/16-18)
505-0830	1	11-3/4" Lg (P/O 179-0391)		32	850-0045	AR	Washer, Lock - Spring (5/16")
505-0734	1	10" Lg (P/O 179-1517)		33	405-1924	AR	Bracket, Support - Muffler Mounting
505-0844	1	34" Lg (P/O 179-1548)					
505-0868	1	14" Lg (P/O 179-1556, 1572)					
505-0963	1	40-1/2" (P/O 179-1609)					
12	800-0160	8	Screw, Cap - Hex Head (3/4-10 x 3-1/4")				
13	862-0008	8	Nut, Hex (3/4-10)				

OPTIONAL FUEL TANK AND SUB BASE



FS-1168

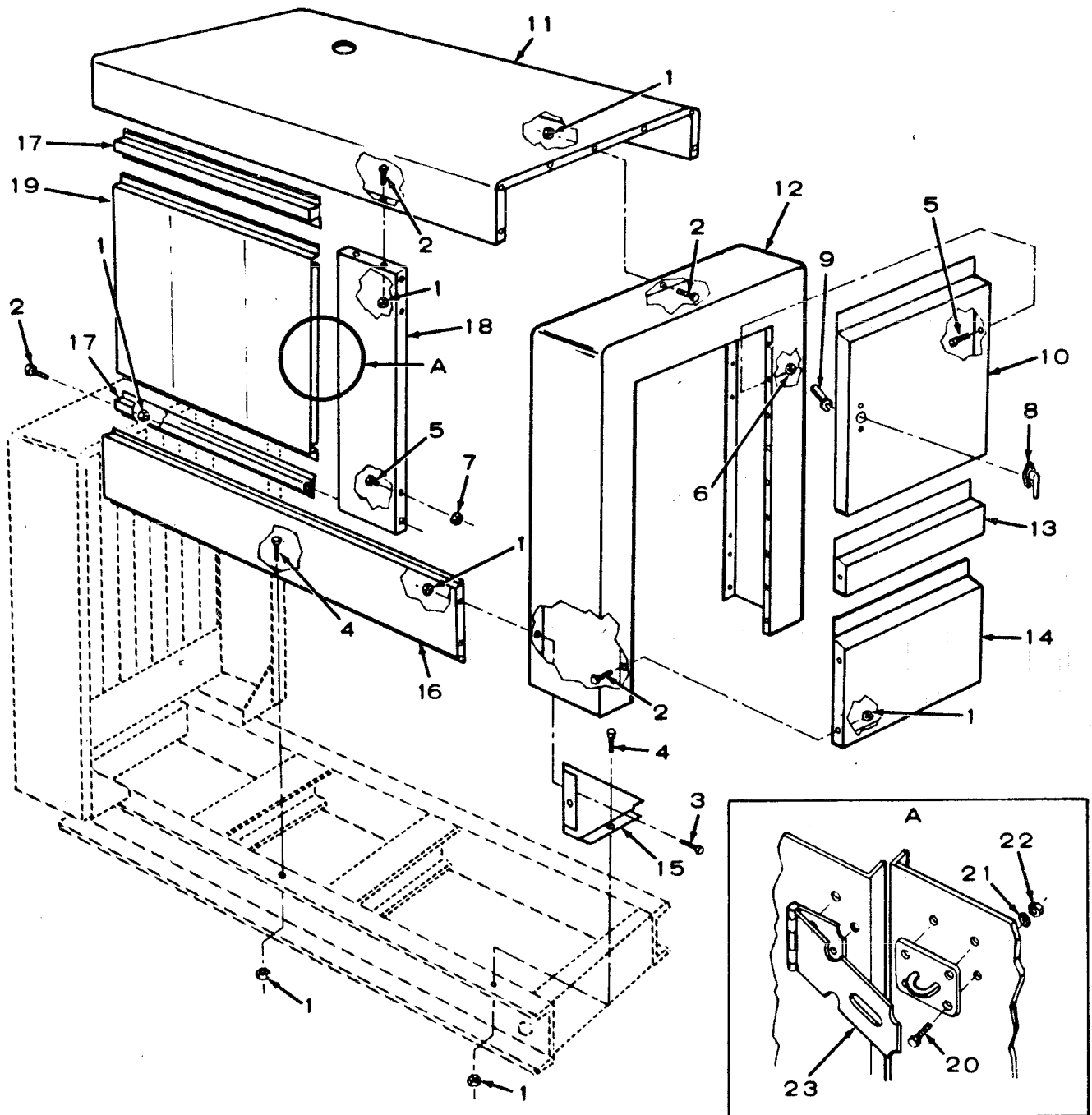
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	159-1004	1	Kit, Fuel Tank and Sub Base
1	159-1002	2	Strap, Tank Holddown
2	502-0143	2	Adapter
3	502-0183	1	Elbow
4	501-0195	1	Line, Fuel
5	505-0018	1	Bushing, Reducer
6	415-0317	1	Pipe, Suction
7	505-0334	1	Plug, Pipe
8	502-0189	1	Connector
9	501-0085	1	Line, Fuel
10	193-0216	1	Gauge, Fuel
11	159-0020	1	Cap, Tank
12	505-0247	1	Plug, Pipe
13	159-1001	1	Tank, Fuel
14	403-1004	2	Plate, End
15	403-1005	1	Base, Sub

THE FOLLOWING ATTACHING HARDWARE ARE NOT ILLUSTRATED

800-0050	AR	Screw, Cap - Hex Head (3/8-16 x 1")
800-0051	AR	Screw, Cap - Hex Head (3/8-16 x 1")
800-0156	AR	Screw, Cap - Hex Head (3/4-10 x 2-1/4")
850-0050	AR	Washer, Lock - Spring (3/8")
850-0079	AR	Washer, Lock - Spring (3/4")
526-0013	AR	Washer, Flat (25/64" ID x 1" OD x 1/16" Thk)
862-0003	AR	Nut, Hex (3/8-16")
862-0020	AR	Nut, Hex (3/4-10)

973-0223 (NOVEMBER 1980)

OPTIONAL SET HOUSING



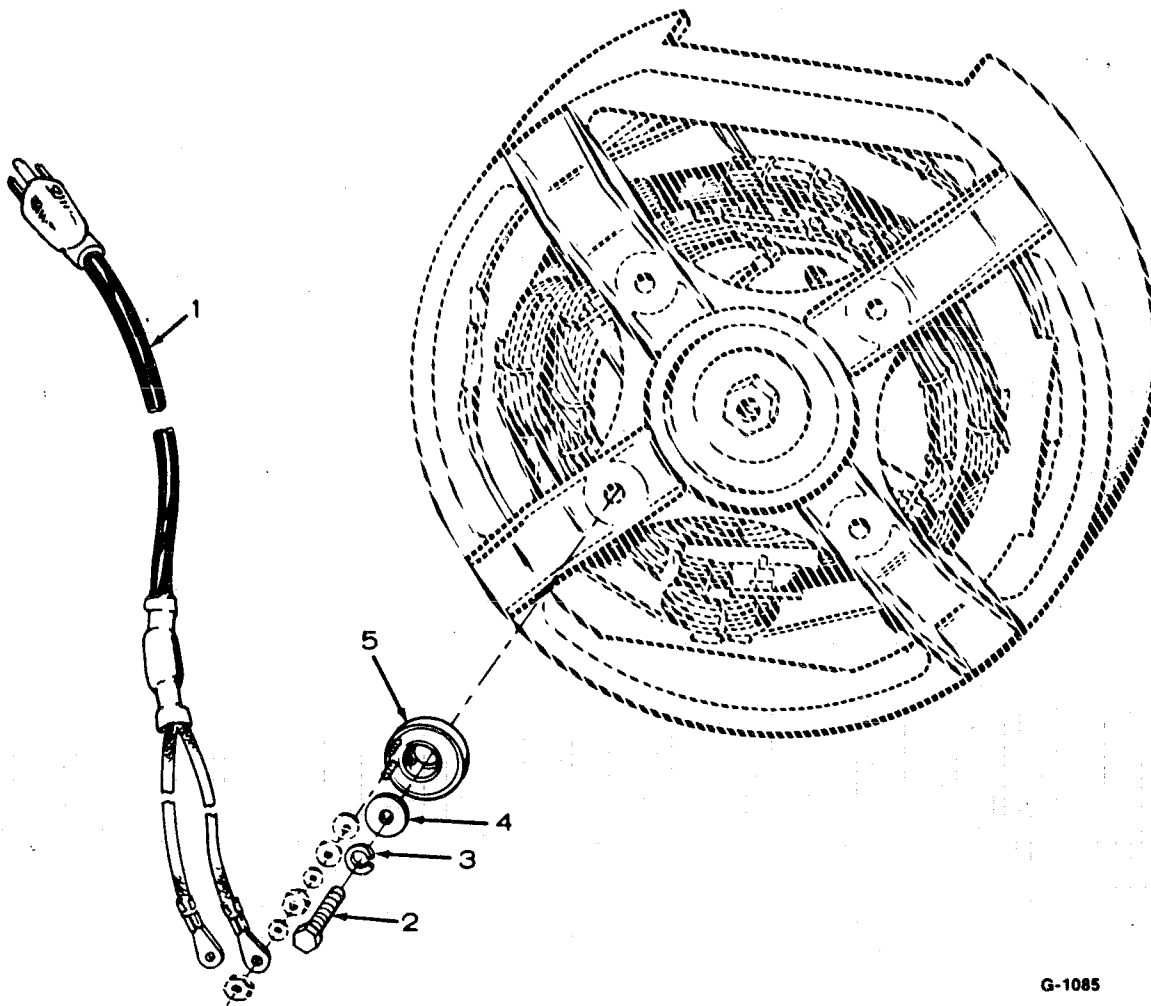
M-1004

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	870-0257	62	Nut, Hex (5/16-18)
2	821-0014	48	Screw, Cap - Locking Head (5/16-18 x 1/2")
3	821-0016	14	Screw, Cap - Locking Head (5/16-18 x 3/4")
4	800-0030	14	Screw, Cap - Hex Head (5/16-18 x 1-1/4")
5	821-0010	20	Screw, Cap - Locking Head (1/4-20)
6	870-0212	4	Nut, Hex (1/4-20)
7	870-0258	16	Nut, Weld - Door Mounting
8	406-0157	1	Handle, Lock
9	406-0089	1	Catch
10	405-1871	1	Door, Rear

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
11	405-2164	1	Panel, Top Housing
12	405-1864	1	Panel, Rear
13	405-1858	2	Panel, Rear Louver
14	405-1856	1	Panel, Lower Rear Housing
15	405-2016	4	Bracket, Panel Mounting
16	405-2162	2	Panel, Base
17	405-1859	8	Panel, Louver
18	405-2173	2	Panel, Center
19	405-1861	4	Door, Removable
20	814-0079	28	Screw, Machine - Flat Head (#8-32 x 1/2")
21	850-0025	28	Washer, Lock - Spring (#8)
22	860-0008	28	Nut, Hex (#8-32)
23	406-0249	4	Hasp Set - Optional

973-0223 (NOVEMBER 1980)

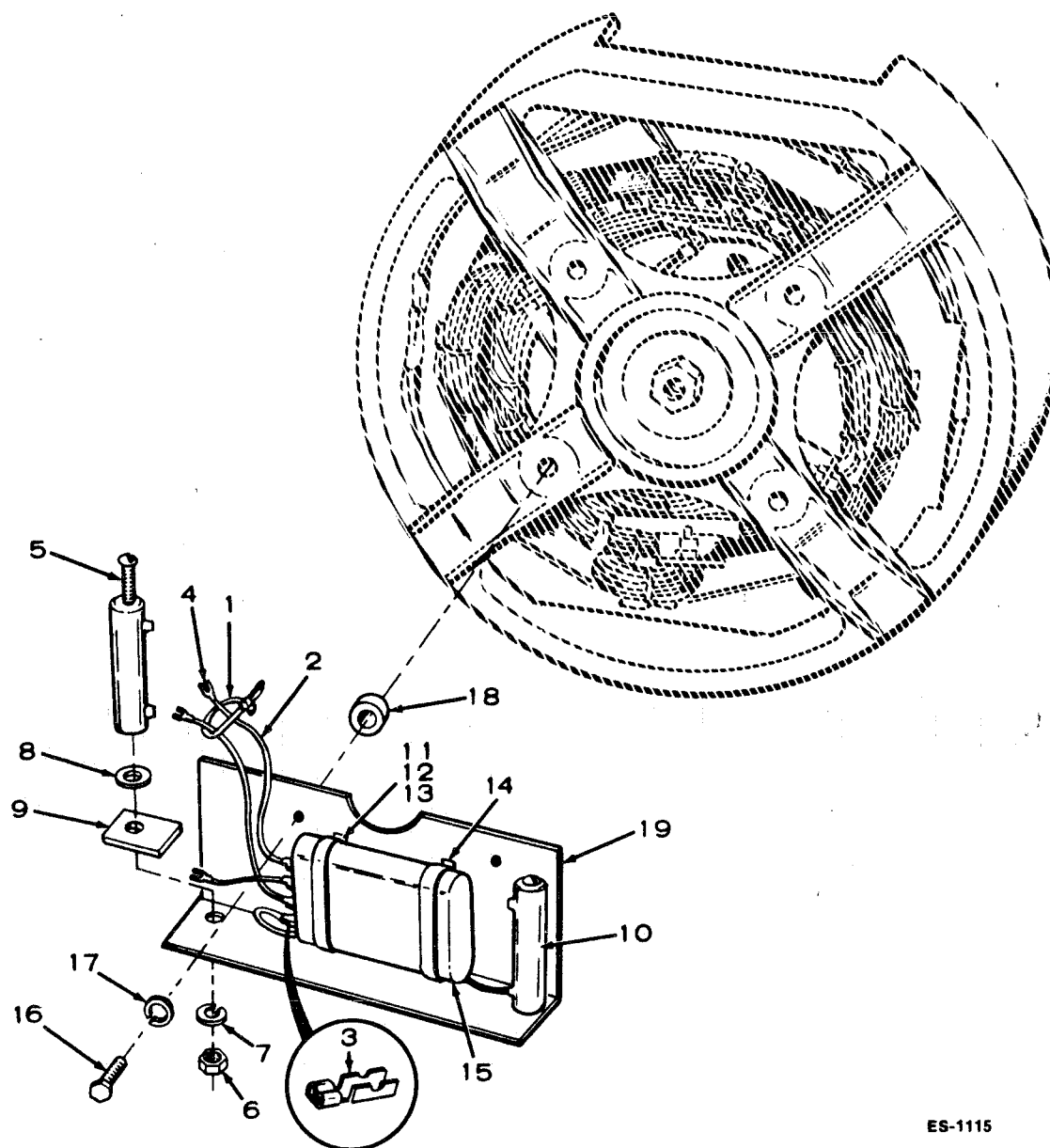
OPTIONAL GENERATOR HEATER INSTALLATION



G-1085

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
		1	Heater, Generator - Installation
1	338-1420	1	Cable Assembly (Includes Thermostat)
2	800-0004	1	Screw, Cap - Hex Head (1/4-20 x 5/8")
3	850-0038	1	Washer, Lock - Spring (1/4")
4	526-0158	1	Washer, Flat (.261" ID x 1" OD x 1/8" Thk)
5	333-0059	1	Heater - 120 Volt, 125 Watt

OPTIONAL VOLTAGE REGULATOR FILTER INSTALLATION

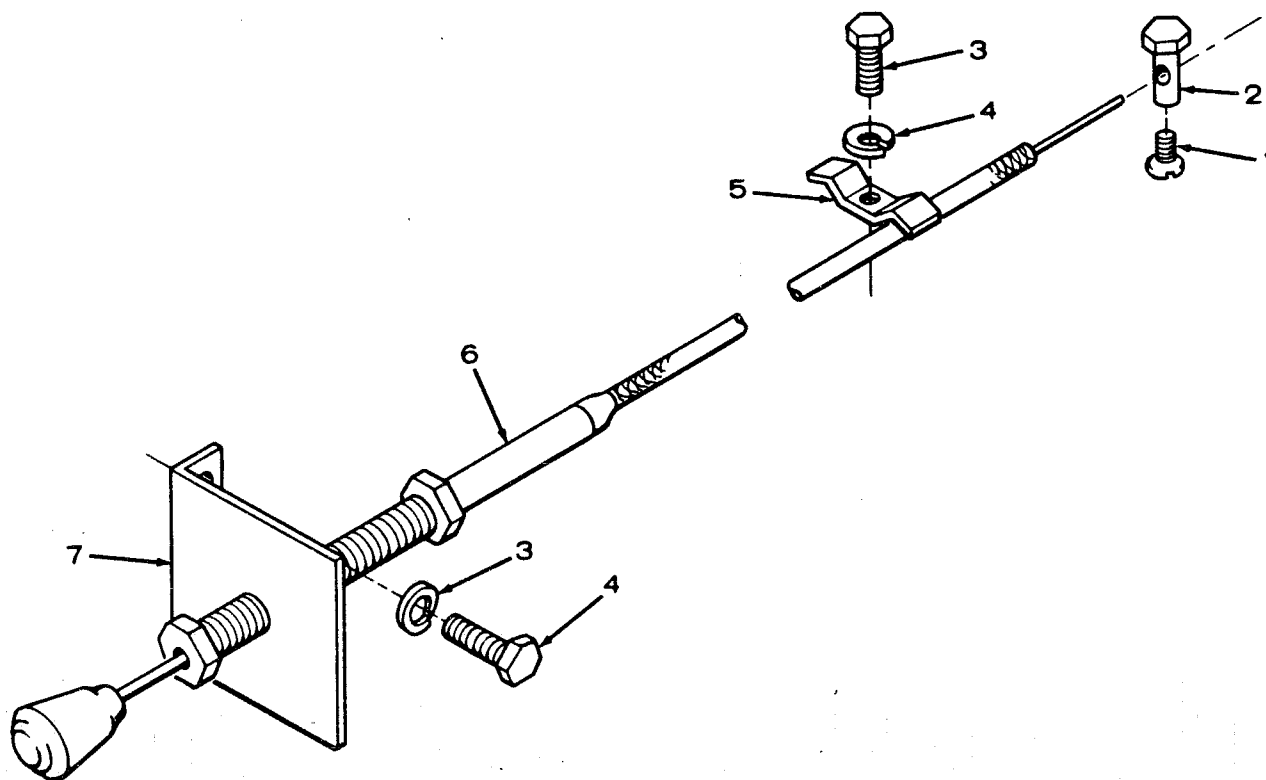


ES-1115

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
VOLTAGE REGULATOR FILTER INSTALLATION				8	304-0427	4	Washer, Centering (1/4")
	232-2694	1	Used on Sets with End Bell Mounted Voltage Regulator	9	304-0292	2	Insulator
	232-2695	1	Used on Sets with Voltage Regulator Mounted in Control Box	10	354-0025	2	Resistor, Fixed, Wire Wound (10-Ohm, 100 Watt)
1	332-0941	5	Tie, Cable	11	813-0098	4	Screw, Machine - Round Head (#10-32 x 3/8")
2	334-0758	AR	Wire, Electrical Bulk - 16 AWG White, 125 Deg C, 600 Volt, Type CCXL	12	870-0053	4	Nut, Hex (#10-32)
3	332-0529	4	Terminal, Lug	13	850-0030	4	Washer, Lock - Spring (#10)
4	332-1279	8	Terminal, Lug	14	312-0189	2	Bracket, Mounting - Capacitor
5	812-0165	2	Screw, Machine - Round Head (1/4-20 x 4-1/2")	15	312-0188	1	Capacitor, Fixed - 15 MFD, 440 VAC
6	862-0001	2	Nut, Hex (1/4-20)	16	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")
7	850-0040	2	Washer, Lock - Spring (1/4")	17	850-0040	2	Washer, Lock - Spring (1/4")
				18	232-2693	3	Spacer (Part of 232-2695 Only)
				19	232-2210	1	Bracket, Mounting

973-0223 (NOVEMBER 1980)

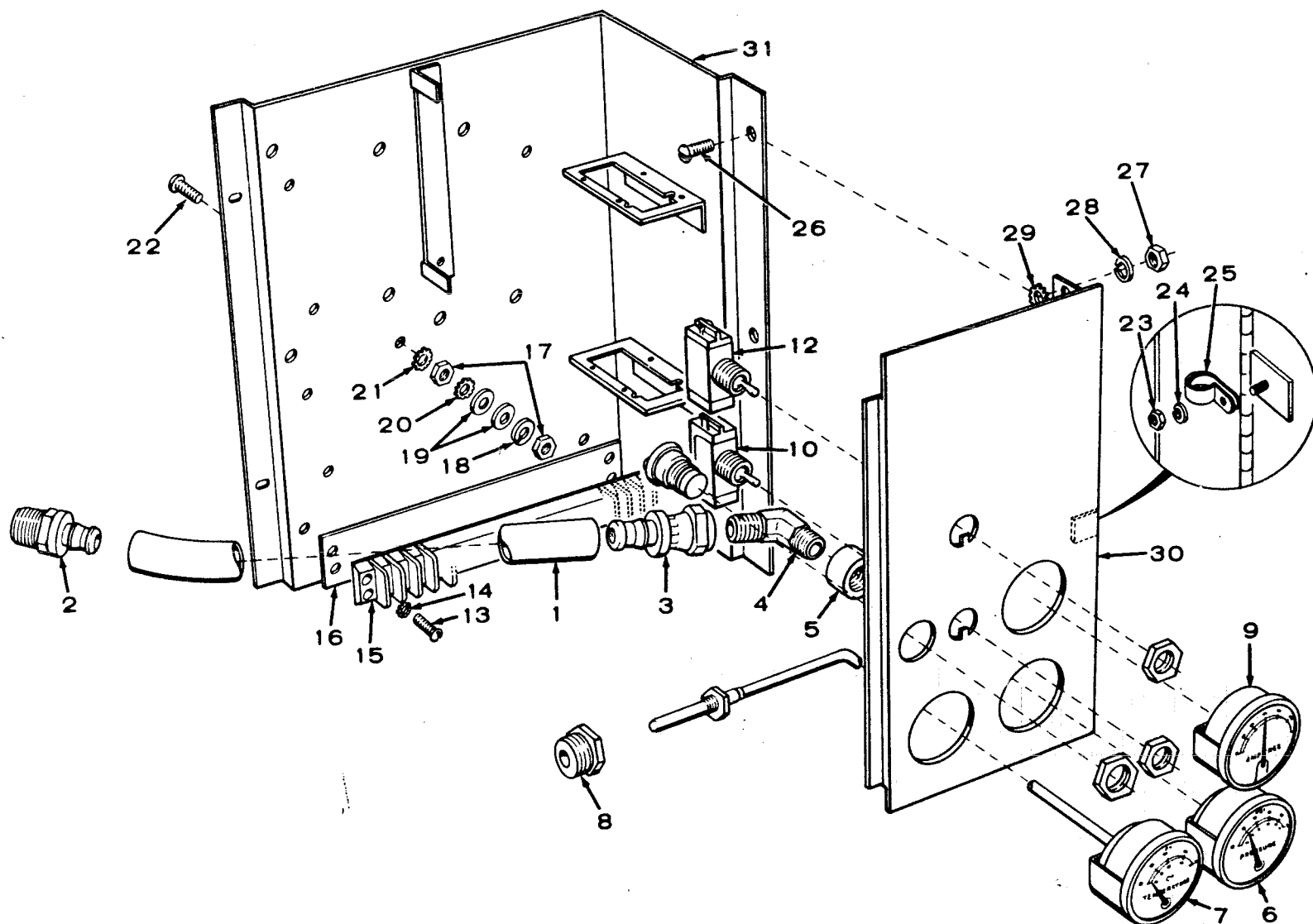
OPTIONAL VERNIER THROTTLE



M-1179

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
VERNIER THROTTLE INSTALLATION			
1	812-0075	1	Screw, Machine - Round Head (#8-32 x 1/4")
2	152-0158	1	Swivel
3	800-0005	3	Screw, Cap - Hex Head (1/4-20 x 3/4")
4	850-0040	3	Washer, Lock - Spring (1/4")
5	152-0036	1	Clamp, Holddown - Cable
6	152-0120	1	Throttle Control - Vernier
7	151-0230	1	Bracket, Mounting - Throttle Control

OPTIONAL ENGINE CONTROL WITH MECHANICAL GAUGES



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0781	AR	Hose, Rubber - High Pressure (1/4" ID x 1/2" OD)
2	502-0444	1	Adapter, Pipe to Hose - Male (1/8" NPT x 1/4" ID Hose)
3	502-0445	1	Adapter, Pipe to Hose - Female (7/16-20 UNF x 1/4" ID Hose)
4	502-0583	1	Elbow, Pipe - 45 Deg. (7/16-20 UNF x 1/8" NPT)
5	502-0051	1	Coupling, Pipe (1/8" NPT)
6	GAUGE, OIL PRESSURE (Select as Required)		
	193-0232	1	Scale Range 0 to 75 PSI
	193-0233	1	Scale Range 0 to 150 PSI
7	GAUGE, TEMPERATURE (Select as Required)		
	193-0234	1	With 72" Capillary Tube
	193-0235	1	With 84" Capillary Tube
	193-0236	1	With 96" Capillary Tube
	193-0305	1	With 144" Capillary Tube
8		1	Reducer, Hex (Included with Gauge) (5/8-18 UNF x 1/2" NPT)
9	302-0061	1	Ammeter
10	308-0088	1	Switch, Toggle (DPST)
11	308-0297	1	Switch, Push
12	308-0155	1	Switch, Toggle (SPST)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
13	812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")
14	853-0003	2	Washer, Lock - ET (#6)
15	332-0795	1	Block, Terminal - 20 Place
16	332-1241	1	Strip, Marker - Terminal
GROUND TERMINAL ASSEMBLY			
17	871-0010	2	Nut, Hex - Brass (#10-32)
18	850-0030	1	Washer, Lock - Spring (#10)
19	526-0205	2	Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/16" Thk)
20	853-0008	1	Washer, Lock - ET (#10)
21	856-0003	1	Washer, Lock - EIT (#10)
22	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")

23	870-0053	1	Nut, Hex (#10-32)
24	850-0030	1	Washer, Lock - Spring (#10)
25	332-0051	1	Clamp, Loop
26	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
27	870-0053	1	Nut, Hex (#10-32)
28	850-0030	1	Washer, Lock - Spring (#10)
29	856-0003	1	Washer, Lock - EIT (#10)
30	301-4009	1	Panel, Control - Engine
31	301-3253	1	Bracket, Mounting - Engine Control