

SECTION VI

DEALER INSTALLED EQUIPMENT

Chaparral Industries, Inc. offers several items of optional equipment which are to be installed by the dealer at the request of the customer.



Figure 6-1. Accessory Gauges

Accessory Gauges

Accessory gauges offered by Chaparral Industries are a Cigarette Lighter (1), and Ampere Gauge (2) for electric start models, a speedometer/odometer (3), and a Tachometer (4). Figure 6-1 shows the normal position for mounting this equipment.

1. Cigarette Lighter - The Cigarette Lighter hot lead is to be connected to the switch terminal marked "Battery", and the ground wire to the ground side of the switch.
2. Ampere Gauge - (See figure 6-2) The ammeter is to be connected into the line between the ignition switch and the solenoid. Disconnect this wire after mounting the Ampere gauge in the dash, and wire as shown in this figure.

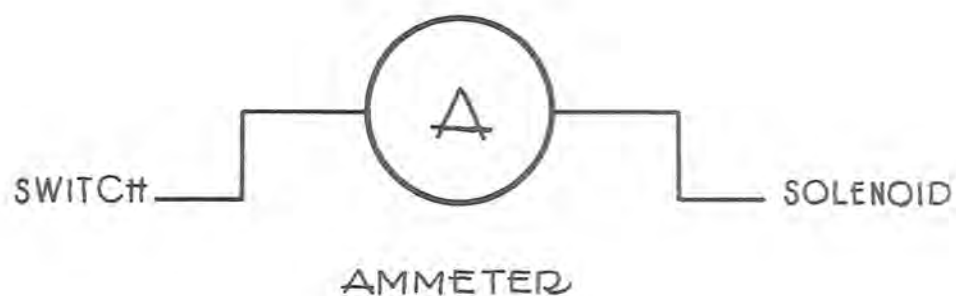


Figure 6-2. Ammeter Connection

3. Speedometer/Odometer - (See figure 6-3). After installing the Speedometer in the dash as shown in figure 6-1, remove the three bolts from the right side of the gearbox as shown in figure 6-3. Place the keyed end of the Speedometer cable into the gearbox output shaft, and replace the three bolts through the Speedometer cable cover.

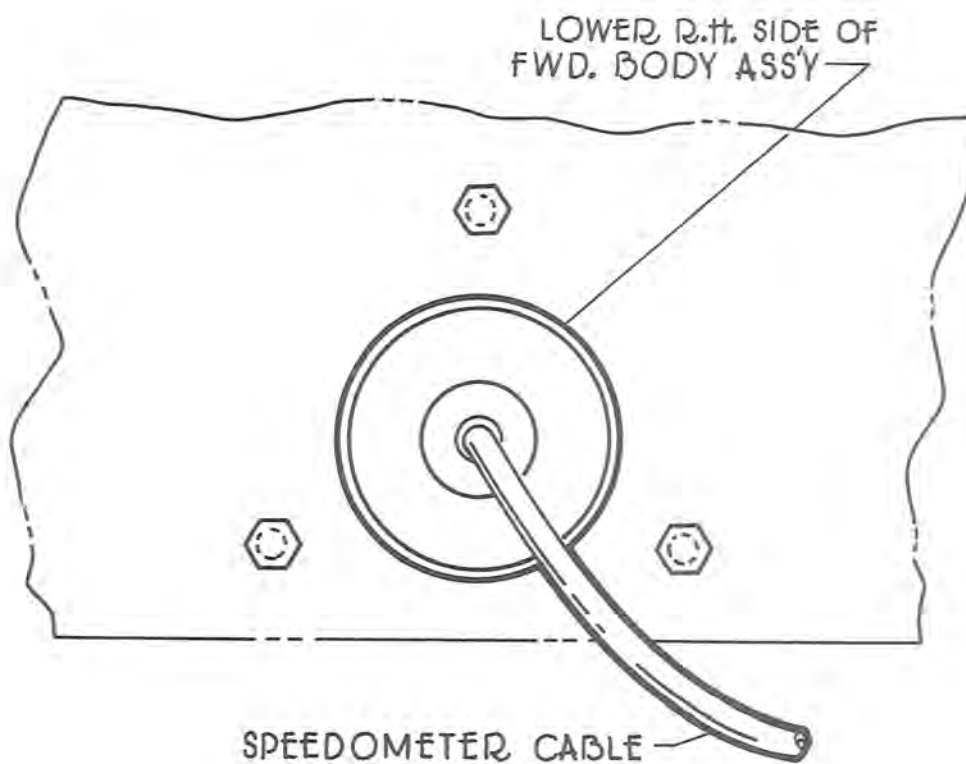


Figure 6-3. Speedometer Connection

4. Tachometer - (See figure 6-4) The Chaparral snowmobiles are furnished with a negative ground. For this installation, the red wire of the Tachometer is to be connected to the Magneto, and the black wire to ground. The white and green wires are not used in this installation, and must be taped over. The purpose of these wires is to provide for internal illumination of the Tachometer, but should not be used on these machines.

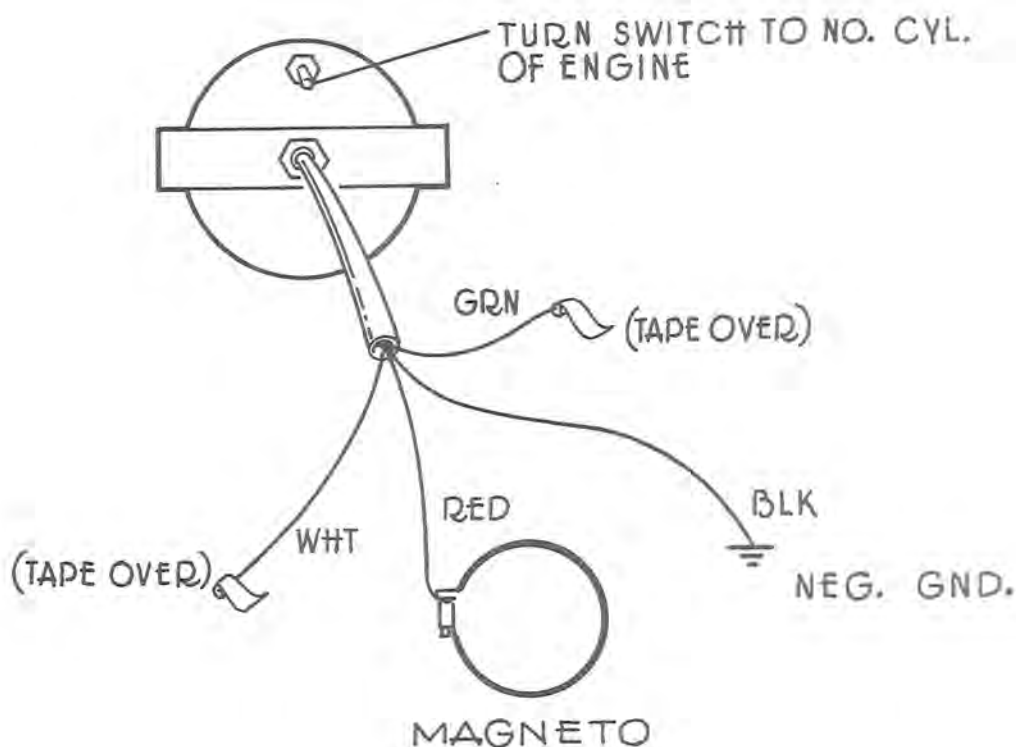


Figure 6-4. Tachometer Connection

High Speed Sprockets

The drive sprocket, part no. 10321, furnished in these machines is either a 15 or 17 tooth sprocket. If the customer desires a higher top speed, the dealer may replace the existing sprocket with a 19 or 21 tooth sprocket. (Part Numbers 10092 or 10093. If this is done, a larger chain, Part Number 10239-2, must also be used. Refer to figure 5-2 for details of the gearbox, drive sprocket, and chain.

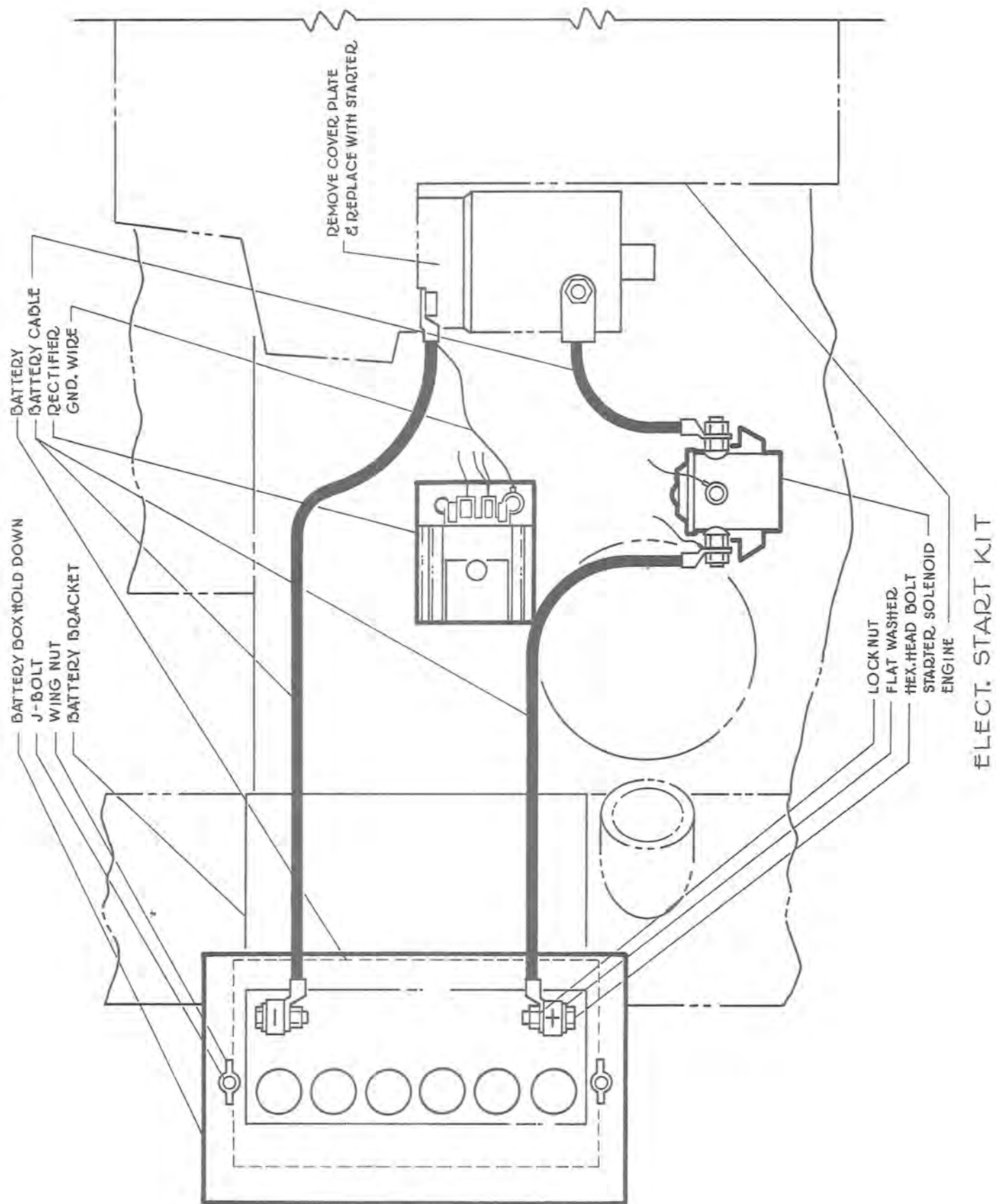


Figure 6-6. Starter Installation

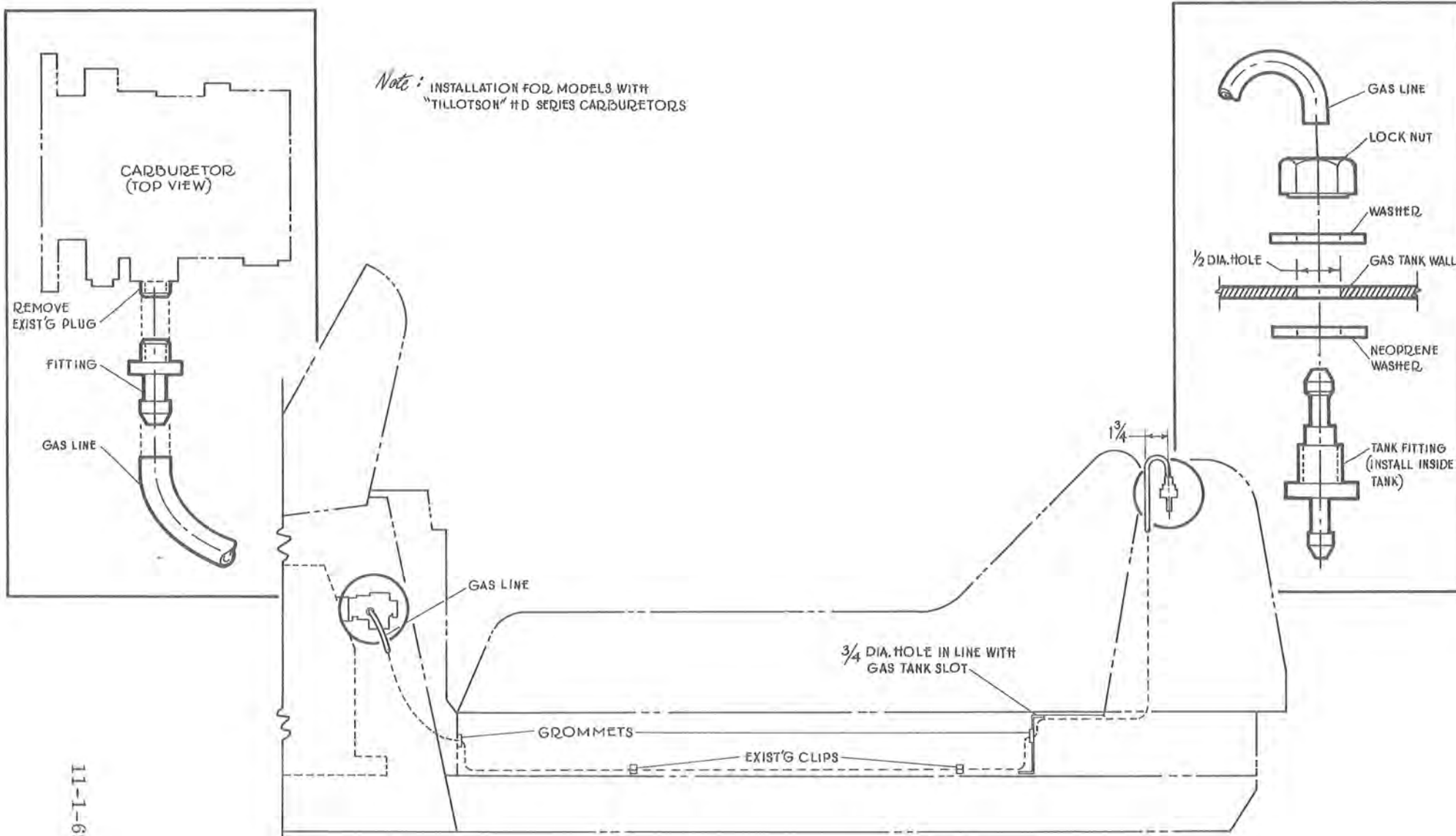


Figure 6-7. High Altitude Kit

Electric Start Kit

Frequently, the customer will specify a manual start unit in the interests of economy, and then will later decide to add the electric starter. For this reason, Chaparral Industries supplies an electric start kit as a dealer installed option. Table 6-1 lists the parts contained in this kit. Figure 6-5 shows the wiring changes which must be made for this installation, and Figure 6-6 shows the physical details of the installation.

High Altitude Kit

The high altitude kit is essentially a means of pressurizing the gas tank with a return line from the carburetor to supply a more effective gasoline feed when the machine is operated at high altitudes. At altitude, a gravity feed system may not be sufficient for efficient operation. In such cases, the engine will "starve out", and lose power. Table 6-2 shows the parts which must be added for the high altitude kit, and Figure 6-7 shows how the parts are to be installed.

TABLE 6-1. Electric Start Kit

Part No.	Description	Quantity
10015	Battery Bracket	1
10870	Wire Harness Conversion	1
10709	Solenoid	1
10711	Rectifier	1
10712	Bolts, 10-32	14
10715	Ground Wire	1
10716	Lock Nut	14
10861-1	Battery Cable	1
10861-2	Battery Cable	1
10861-3	Battery Cable	1
10862	Washer	2
10863	Bolt	2
10864	Locknut	2
10865	Battery Box Holddown	1
10867	Starter	1
10869	Wing Nut	2
10868	J - Bolts	2
10871	Battery	1

TABLE 6-2. High Altitude Kit

Part No.	Description	Quantity
10881	Return Gas Line	1
10883	Fitting	1
10099	Grommet	1
10085	Tank Fitting	1
10087	Washer	1
10088	Washer, Neoprene	1
10089	Lock Nut	1

SECTION VI

DEALER INSTALLED EQUIPMENT

For 1971, Chaparral Industries offers an expanded line of accessory equipment for dealer installation.

The following accessory kits are now available.

- Touch Bar Suspension System
- Electric Start Kit - Hirth Engines
- Electric Start Kit - CCW Engines
- Tachometer
- Speedometer
- Primer Kit
- Ski Shock Kit
- Ice Runners
- Lighter
- Passenger Back Rest
- Rear Flap
- Rocky Mountain Skis

TOUCH BAR KIT INSTRUCTIONS

- A. Remove all bogie assemblies (save six bolts and lock washers).
- B. Locate a 13/32 in. diameter hole in body of each side, one inch above and seven inches forward of existing front bogie axle mounting hole.
- C. Place stiffener plate on inside of body with center hole aligned with hole just drilled, keeping edge of plate parallel with bottom of body. Drill remaining three 13/32 inch diameter holes using plate as template (each side). Bolt plates in place.
- D. Mount side mounting bracket to existing bogie axle mounting holes (each side). Pre-assemble three bogie assemblies and touch bars, and slide assembly into position on inside of track (spring hanging loose).
- E. Bolt front axle through new holes in body, bolt middle and rear axle through holes in side mounting brackets, use spacers at each end of axle (between axle and bracket). Use bolts removed from old bogie assemblies. Lift looped end of spring over tie bar on each bogie axle, starting at front axle, and re-tighten track.

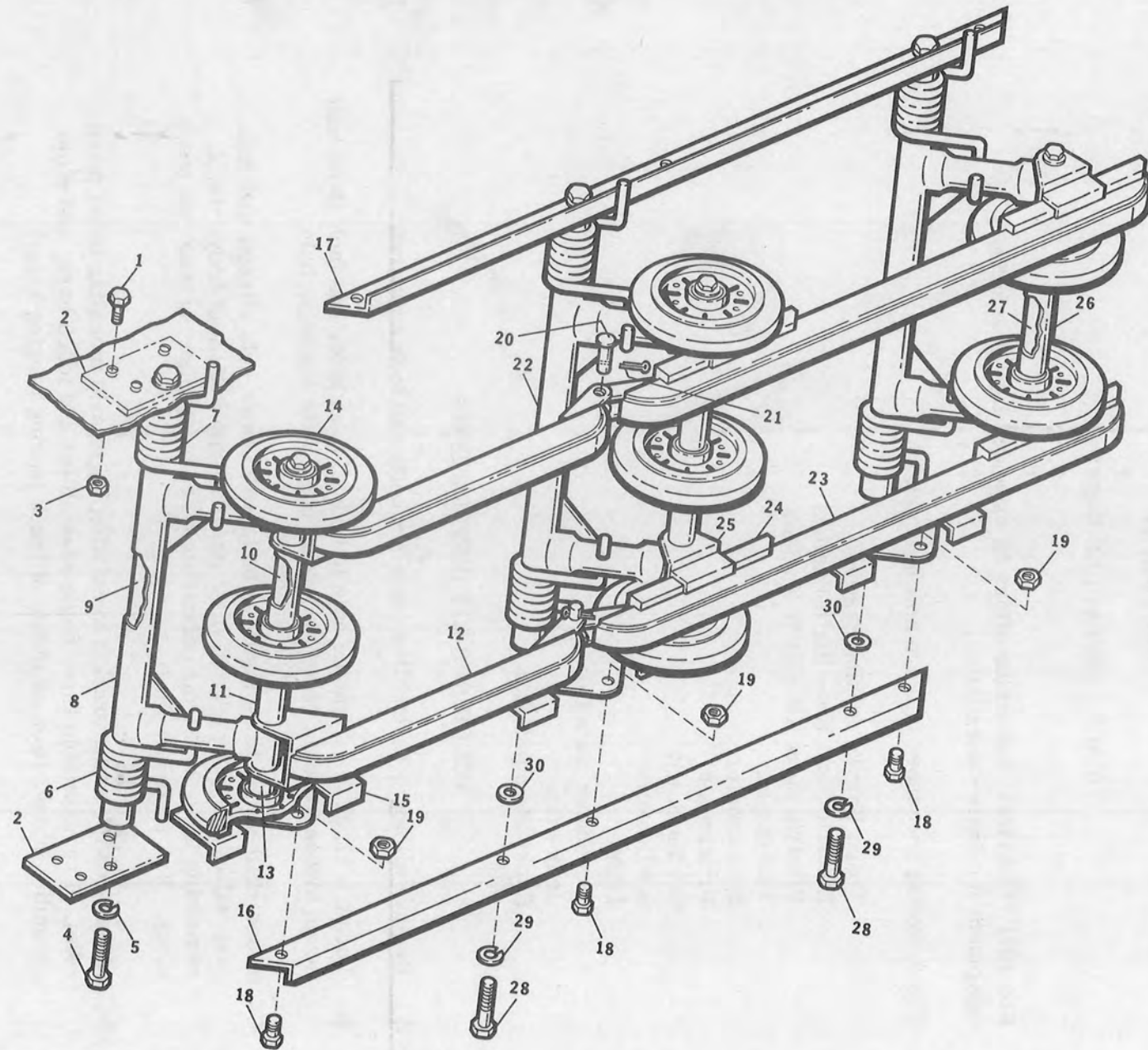


FIGURE 6-1. TOUCH BAR SUSPENSION SYSTEM

TOUCH BAR ASSEMBLY

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ASSY.</u>	<u>LIST PRICE</u>
	31700	Touch Bar Assembly	1	\$ 122.00
1	B01-12	. Bolt	6	
2	31732	. Plate, Stiffener	2	
3	N02-08	. Nut	6	
4		Part shown for Reference See Item 26, Figure 5-7		
5		Part shown for Reference See Item 27, Figure 5-7		
6	31712-2	. Spring, Bogie, R.H.	3	1.25
7	31712-1	. Spring, Bogie, L.H.	3	1.25
8	31715	. Axle Weldment	1	
9	31206	. Axle, Main	3	4.25
10	31208	. Axle, Long	2	1.60
11	31710	. Tube, Middle Bogie Axle	2	2.50
12	31735	. Slide Weldment, Front	2	
13	31709	. Tube, End Bogie Axle	2	1.75
14	31225	. Wheel, Bogie	8	3.00
15		Part shown for Reference See Item 37, Figure 5-1		
16	31731-2	. Mounting Bracket, Side (R.H.)	1	3.75
17	31731-1	. Mounting Bracket, Side (L.H.)	1	3.75
18	B01-12	. Bolt	6	
19	N02-08	. Nut	6	
20	31604-4	. Clevis Pin	2	.25
21	P27-12	. Cotter Pin	2	
22	31705	. Axle Weldment	2	
23	31736	. Slide Weldment, Rear	2	
24	31737	. Slide Block	4	
25	31702	. Clip, Bracket Weldment	2	
26	31728	. Tube, Rear Middle Bogie Axle	1	
27	31729	. Axle, Medium	1	
28		Part shown for Reference See Item 26, Figure 5-7		
29		Part shown for Reference See Item 27, Figure 5-7		
30	31733	. Spacer, Main Axle	4	

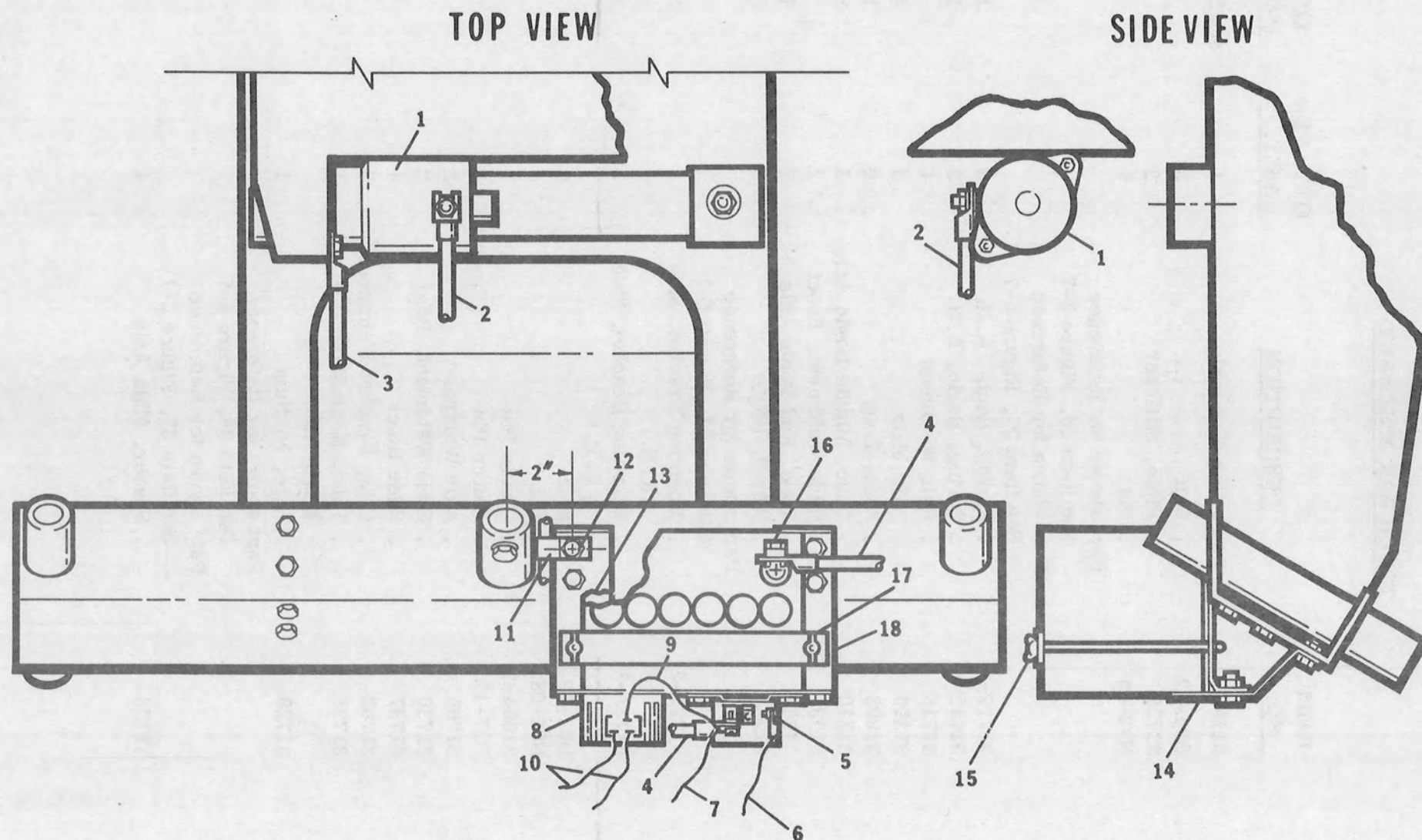
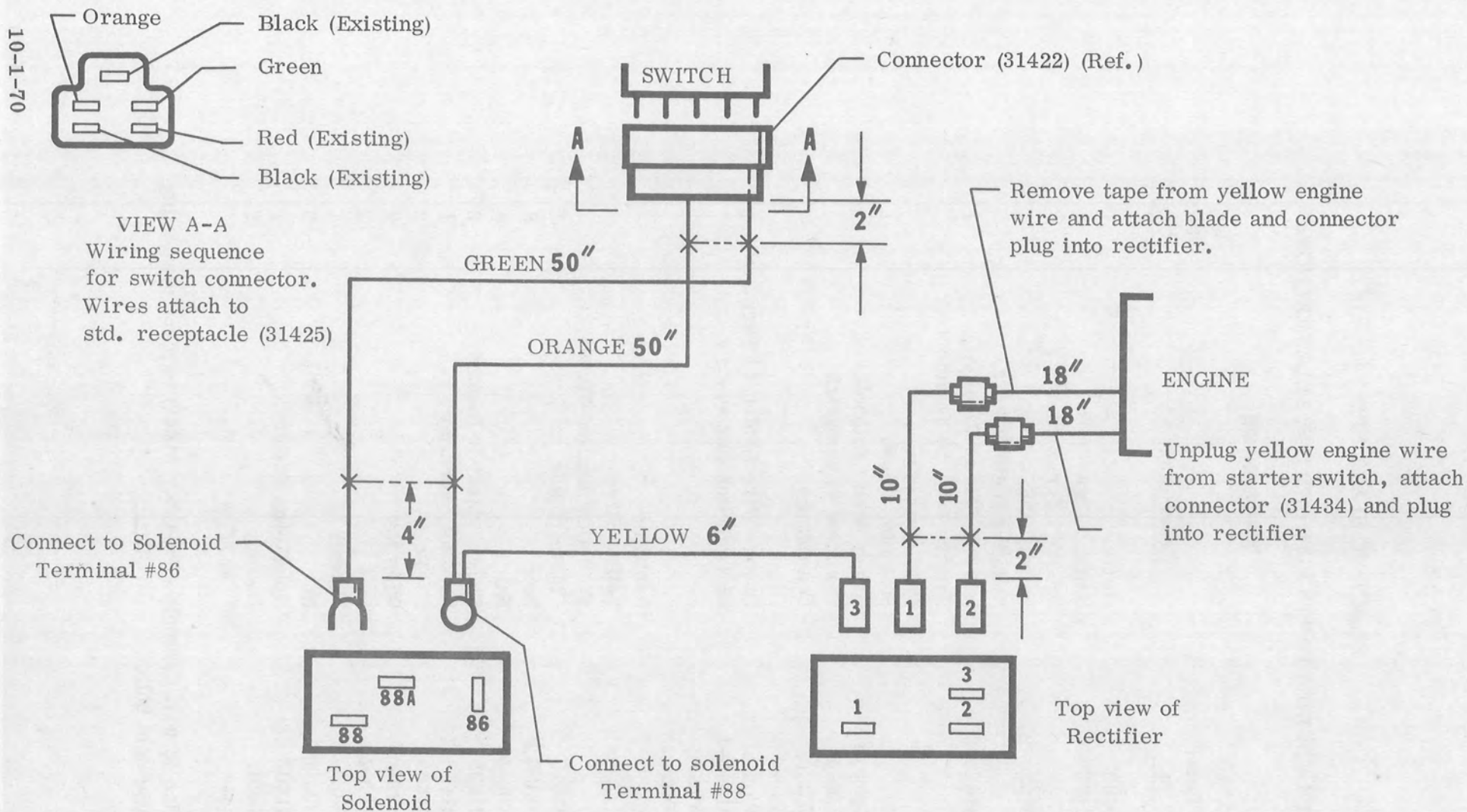


FIGURE 6-2. ELECTRIC START KIT - HIRTH ENGINES



WIRING CONVERSION FOR HIRTH ENGINES

FIGURE 6-3. HIRTH WIRING SCHEMATIC

ELECTRIC START KIT

HIRTH ENGINES PARTS LIST AND INSTALLATION NOTES

<u>Item No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty Per Assy</u>
1	31637	Starter	1
2	31629-4	Battery Cable (To Solenoid Terminal 88A)	1
3	31629-2	Battery Cable (To Negative Battery Post	1
4	31629-3	Battery Cable (Positive Battery Post To Terminal 88 of Solenoid)	1
5		Solenoid, Bosch	1
6	Part of 31649-1 Wiring Harness	Green Wire (Solenoid Terminal 86 to Switch Connector)	
7	Part of 31649-1 Wiring Harness	Orange Wire (Solenoid Terminal 88 To Switch Connector)	
8		Rectifier	
9		Yellow Wire	
10		To Yellow Engine Wires	
11	31643	Clamp, Cable	1
12	B03-12	Bolt	8
	N06-06	Nut	8
13	31635	Strip, Adhesive-Backed	2
14	31628-1	Bracket Assembly	1
15	31633	J - Bolt	2
	N12-06	Wing Nut	2
16	B03-16	Bolt	2
	W02-06	Washer	4
	N06-06	Nut	2
17	31632	Holddown, Battery	1
18	SN9L	Battery	1

NOTES

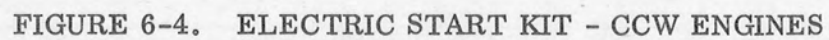
1. Use 45 watt lightbulb (Part No. 31642) in place of existing headlight bulb.

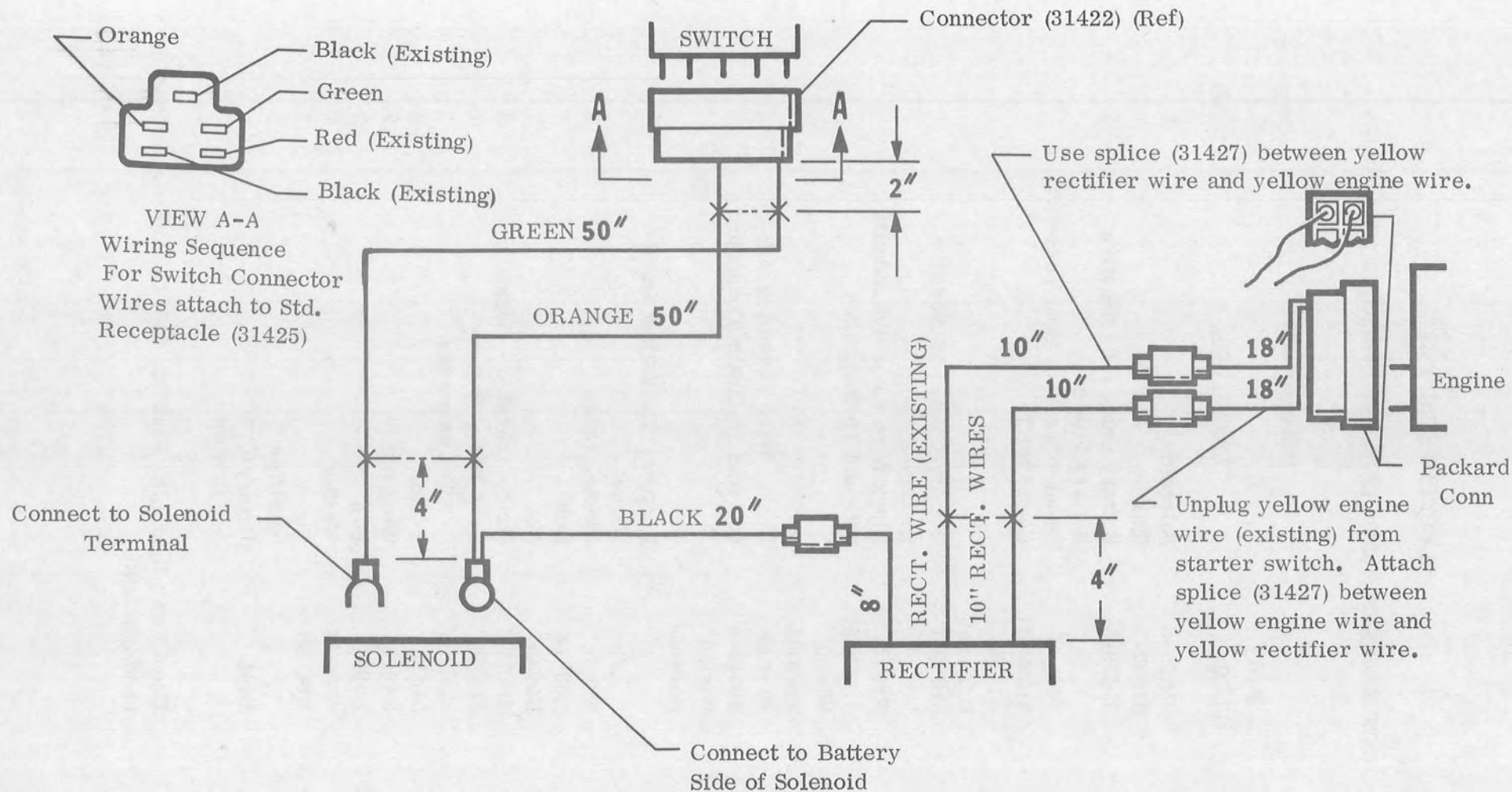
2. Use battery with center filler caps only. Gould SN9L or equivalent (12 volt, 32 ampere-hour).
3. Holes drilled for mounting bolts (Item 10) must be 9/32 inch diameter.

INSTALLATION INSTRUCTIONS

31627-1 Hirth Engines
31627-3 CCW Engines

- A. Place Bracket Assembly (31628-1 for Hirth Engines, 31628-2 for CCW Engines) on the left side of spindle channel with the first set of holes 2.0 inches from the center line of the machine. Use this bracket in place as a template to drill eight 0.281 in. diameter holes in the channel
- B. After drilling holes, install seven bolts and nuts to hold bracket in place. The eighth bolt and nut are to be used to install the cable clamp and cables.
- C. Place the adhesive-backed strips in place under the battery.
- D. Set the battery in place on the adhesive-backed strips and fasten securely with "J" bolts, hold-down, and wing nuts.
- E. Remove the cover plate from the engine and install the starter motor.
- F. Install the battery cables and wiring as shown on the enclosed wiring drawing.





WIRING CONVERSION FOR CCW ENGINES

FIGURE 6-5. CCW WIRING SCHEMATIC

ELECTRIC START KIT

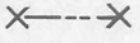
CCW ENGINES PARTS LIST AND INSTALLATION NOTES

<u>Item No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty Per Assy</u>
1	31626-3	Solenoid	1
2	31637-3	Starter	1
3	31629-5	Battery Cable (To Negative Battery Post)	1
4	Part of 31649-3 Wiring Harness	Green Wire (Solenoid To Switch Connector)	
5	31629-1	Battery Cable (To Positive Battery Post)	1
6	Part of 31649-3 Wiring Harness	Black Wire (Positive Side Of Solenoid To Rectifier)	
7	Part of 31649-3 Wiring Harness	Orange Wire (Positive Side of Solenoid To Switch Connector)	
8		Rectifier To Yellow Engine Wires	
9	31643	Clamp, Cable	1
10	B03-12	Bolt	8
	N06-06	Nut	8
11	31635	Strip, Adhesive - Backed	2
12	31632	Hold Down, Battery	1
13	31628-3	Bracket Assembly	1
14	31633	J- Bolt	2
	N12-06	Wing Nut	2
15	B03-16	Bolt	2
	W02-06	Washer	4
	N06-06	Nut	2
16		Rectifier	1
17	SN9L	Battery	1

NOTES

1. Use 45 watt lightbulb (Part No. 31642) in place of existing headlight bulb.

2. Use Battery with center filler caps only. Gould SN9L
(12 volt, 32 ampere - hour or equivalent.
3. Holes drilled for mounting bolts (Item 10) must be 9/32
inch diameter.

-  Indicates Sta-Kon splice (31427)-2 required (Hirth) 3 required (CCW)
-  Indicates std. receptacle (31425)-4 req'd. and male connector (black) (31434)- 3
required.
-  Indicates eyelet fastener (31436). 1 required.
-  Indicates fork-type fastener (31435). 1 required.
-  Indicates binding. Use tie fastener (31437). As required.

All wires to be 16 Ga.

Wire item numbers:

Yellow	31432
Orange	31428
Green	31429

RECOMMENDED LOCATION OF SPEEDOMETER & TACHOMETER

Speedometer on right - use Cable 31641-3 (24" long).

Speedometer on left - use Cable 31641-4 (42" long).

	<u>Speedo-location</u>	<u>Tach-location</u>	<u>Both Gages</u>
SKYLARK -- 292 H	None	None	No
338 H	"	"	No
372 H	"	"	No
FIREBIRD -- 338 H	Right Side	Left Side	Yes
340 C	Left Side	Left Side	No
340 J	Right Side	Left Side	Yes
399 J	Right Side	Left Side	Yes
400 C	Left Side	Left Side	No
438 H	Left Side	Left Side	No
440 C	Left Side	Left Side	No
440 S	Right Side	Right Side	No
493 H	Left Side	Left Side	No
634 H	Left Side	Left Side	No
EXECUTIVE -- 340 J	Right Side	Left Side	Yes
399 J	Right Side	Left Side	Yes
438 H	Right Side	Left Side	Yes
440 S	Right Side	Right Side	No
440 C	Left Side	Left Side	No
340 & 400 C	Left Side	Left Side	No
493 H	Right Side	Left Side	Yes
634 H	Left Side	Left Side	No

SPEEDOMETER KIT

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ARTICLE</u>	<u>LIST PRICE</u>
1	31644	Speedometer Kit (Firebird)	1	
	32644	Speedometer Kit (Executive)	1	
2	31758	Back-Up Ring	1	
3	31436	Eyelet Fastener	1	
4	31431	Brown Wire, 16"	1	
5	31426	Splice	1	
6		Existing brown wires between engine and switch		
7		Existing red wires between head light and switch		
8	31430	Red wire, 16"	1	
9	31427	Sta-Kon Splice	1	
10	31641-3	Cable, 24 in. Right Side	1	
	31641-4	Cable, 42 in. Left Side	1	
11		Front Axle (Shown for reference)		
12	31641-6	Adapter Receptacle	1	
13		Chassis (Shown for reference)		
14	31641-7	Drive Pin	1	
15	31641-1	Head, Adapter (Firebird)	1	
	31641-2	Head, Adapter (Executive)	1	

SPEEDOMETER KIT INSTALLATION INSTRUCTIONS

- A. Locate on right or left side of dash depending on engine and options.
- B. Cut a 3 inch diameter hole in dash at chosen location.
- C. Remove two nuts and "U" Clamp from back of speedometer.
- D. Insert light bulb in hole and screw cable to back of speedometer, place complete unit through hole in dash. Slide back-up ring over rear of speedometer, replace "U" clamp and tighten down one nut. Under remaining nut, place eyelet fastener of brown wire and tighten down securely.
- E. Connect red speedometer wire to red wire between switch and head light, and connect brown speedometer wire to brown wire between engine and switch with supplied wire splices.
- F. Remove the three nuts and bolts from right front axle flange. Press adapter receptacle in center hole of axle end. Install drive pin, place

F. (Continued)

adapter head over pin with three mounting holes over three flange holes and reinstall three nuts and bolts, tighten securely.

- G. Route cable from speedometer dial housing to adapter head. (Do not make any sharp bends in cable). Attach end of cable to adapter head.

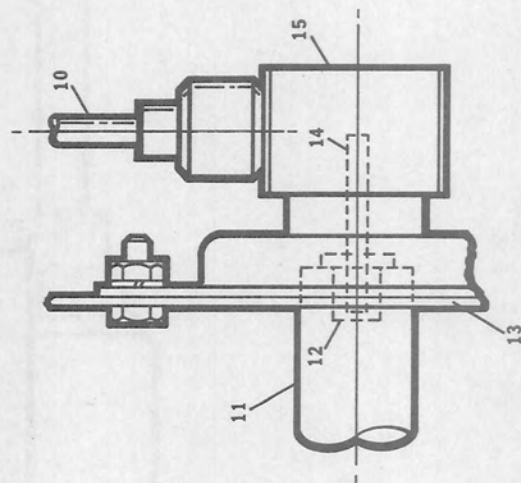
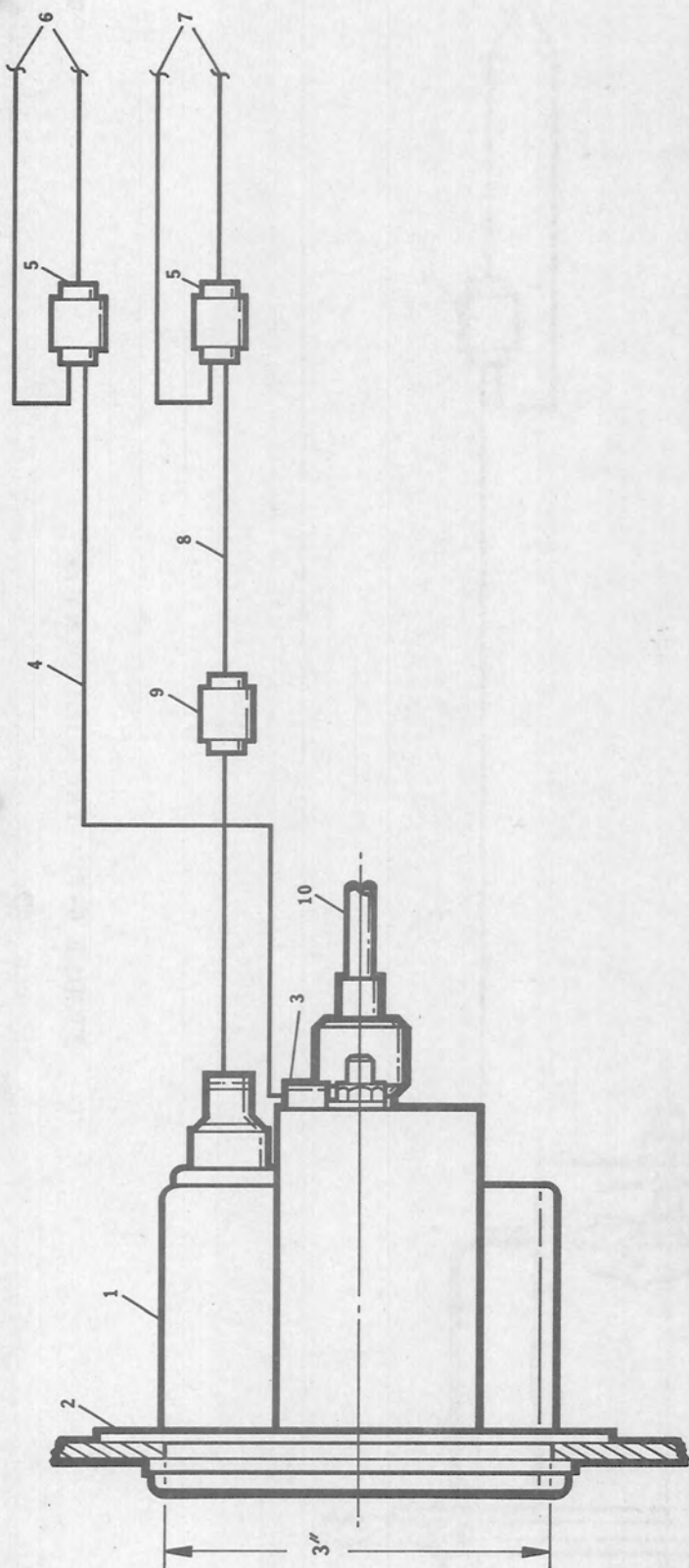


FIGURE 6-6. SPEEDOMETER KIT

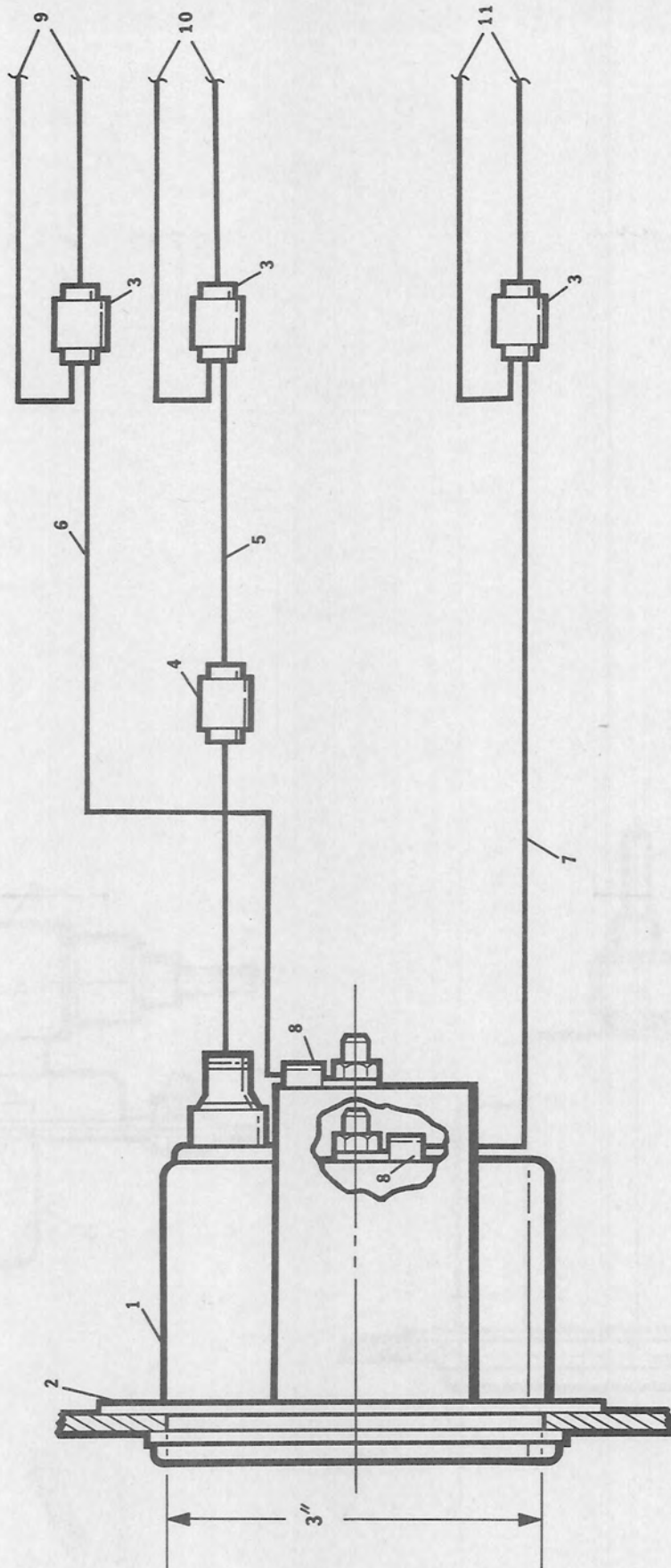


FIGURE 6-7. TACHOMETER KIT

TACHOMETER KIT

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ARTICLE</u>	<u>LIST PRICE</u>
1	31640	Tachometer	1	
2	31758	Back-Up Ring	1	
3	31426	Splice	3	
4	31427	Sta-Kon Splice	1	
5	31430	Red Wire, 16 Inches	1	
6	31431	Brown Wire, 16 Inches (Ground)	1	
7	31433	Black Wire, 16 Inches (To Mag.)	1	
8	31436	Eyelet Fastener	1	
9		Existing brown wires between engine and switch		
10		Existing red wires between Headlight and switch		
11		Existing black wires between engine and switch		

TACHOMETER KIT INSTRUCTIONS

- A. Locate on right or left side of dash depending on engine and other options.
- B. Cut a 3 inch diameter hole in dash at chosen location.
- C. Remove two nuts and "U" clamp from back of tachometer.
- D. Connect eyelet fastener of black wire to center terminal on back of tachometer. Insert light bulb holder in hole and place complete unit through hole in dash. Slide back-up ring over rear of tachometer, replace "U" clamp and tighten down on nut. Under remaining nut, place eyelet fastener of brown wire and tighten down nut securely.
- E. Connect black tachometer wire to black wire between engine and switch, connect red tachometer wire between switch and head light, connect brown tachometer wire to brown wire between engine and switch with supplied splicer.

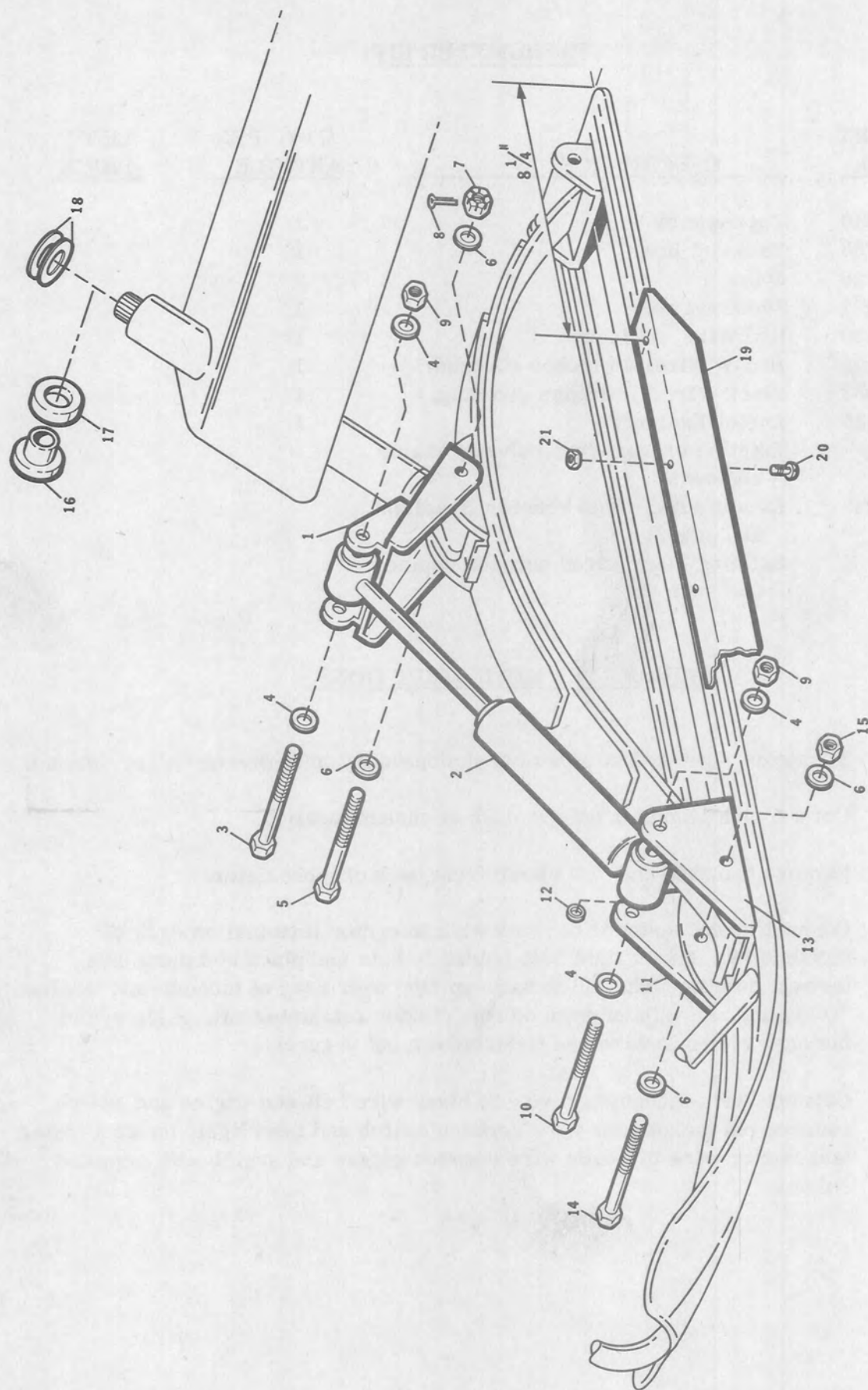


FIGURE 6-8. SHOCK KIT AND ICE RUNNER KIT

SHOCK KIT AND ICE RUNNER

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ARTICLE</u>	<u>LIST PRICE</u>
	31740-1	Shock Kit, L. H.	1	
	31740-2	Shock Kit, R. H.	1	

NOTE: Both kits have identical parts, bolts reversed in assembly

1	31741	.Bracket Weldment	1
2	33664	.Shock	1
3	B08-45	.Bolt	1
4	W01-09	.Washer	1
5	31613-2	.Bolt	1
6	W01-08	.Washer	4
7	N08-08	.Nut	1
8	P26-12	.Cotter Pin	1
9	N06-09	.Nut	1
10	B08-52	.Bolt	1
11	31742-2	.Bracket, Ski, R. H.	1
12	31744	.Spacer	2
13	31742-1	.Bracket, Ski, L. H.	1
14	B01-52	.Bolt	1
15	N06-08	.Nut	1
16		Spindle Bushing (Shown for reference)	
17		Spacer (Remove)	
18	31259	Washer	2
	31760	Ice Runner Kit	1
19	31761	Runner, Ice	2
20	M02-12	Screw	10
21	N06-05	Nut	10

SHOCK KIT INSTRUCTIONS

- Remove bolts holding spring to spindle, remove ski assembly from snowmobile.
- Remove steering arm and pull spindles.
- Remove 1/4 in. spacer at top of spindle tube and replace with two flat washers provided.
- Slide bracket weldment over spindle and reinstall spindle and steering arms. (Make sure spindle is in correct direction and straight).

- E. Remount ski using new hardware provided (do not over tighten nut).
- F. Remove bolt from front spring bracket.
- G. Mount right and left hand ski bracket with new hardware provided.
- H. Install shock movable position up.

ICE RUNNERS INSTRUCTIONS

- A. Use ice runner as a drill pattern, place runner against edge of ski with rear mounting hole 8-1/4 inches from rear of ski.
- B. Drill five 11/32 inch diameter holes through ski.
- C. Install five screws and nuts (screw heads down), tighten securely.
 - 1. Installing runners on inside of each ski will improve steering in both directions on ice.
 - 2. Installing runners on right side of each ski improves steering on ice, to right only.
 - 3. Installing runners on left side of each ski improves steering on ice, to left only.

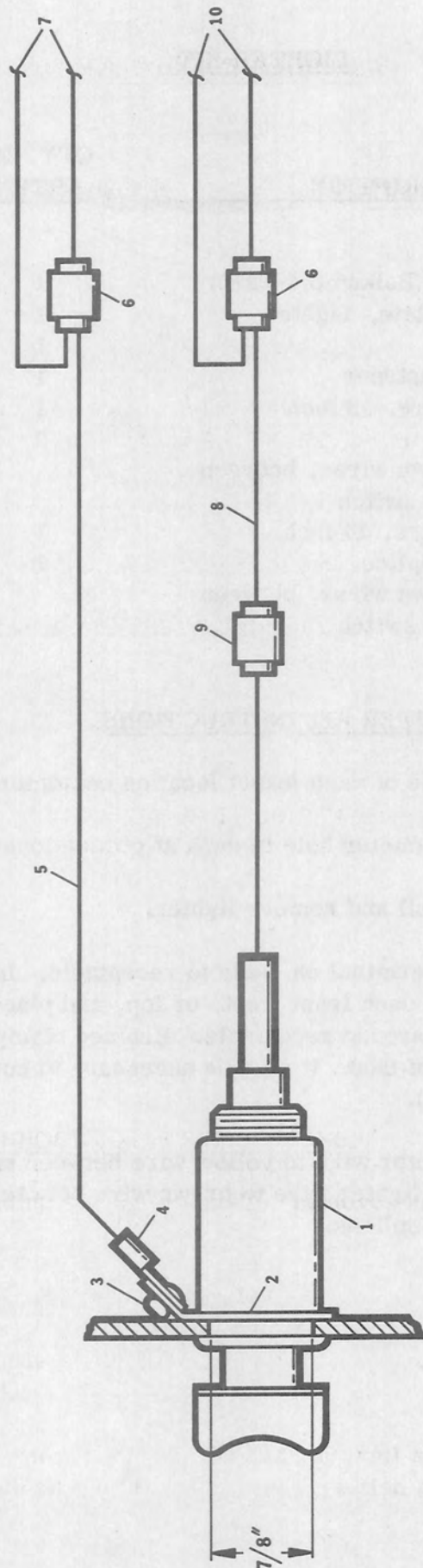


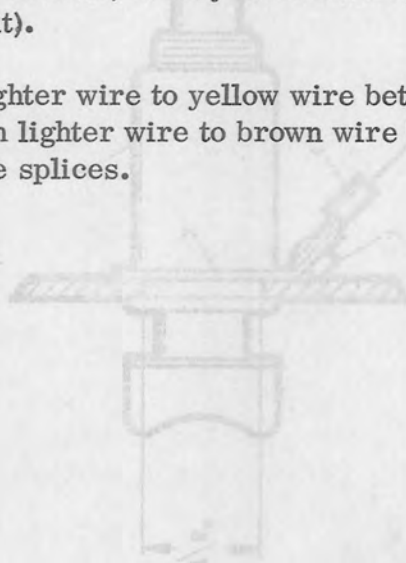
FIGURE 6-9. LIGHTER KIT

LIGHTER KIT

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ARTICLE</u>	<u>LIST PRICE</u>
	31780	Lighter Kit		
1	31781	. Lighter, (Balkamp 4-2272)	1	
2	31782	. Backup Plate, Lighter	1	
3	R02-02	. Rivet	1	
4	31436	. Eyelet Fastener	1	
5	31431	. Brown wire, 32 inch	1	
6	31426	. Splice	2	
7		Existing brown wires, between engine and switch		
8	31432	. Yellow wire, 14 inch	1	
9	31427	. Sta-Kon Splice	1	
10		Existing brown wires, between engine and switch		

LIGHTER KIT INSTRUCTIONS

- A. Locate on right side of dash (exact location customer option).
- B. Drill a 7/8 inch diameter hole in dash at chosen location.
- C. Unscrew clamp shell and remove lighter.
- D. Connect threaded terminal on cable to receptacle. Insert cable and receptacle through dash from front, or top, and place the back-up plate on back side around receptacle. Replace clamp shell. (Due to varying thickness of dash, it may be necessary to cut off large end of clamp shell to suit).
- E. Connect yellow lighter wire to yellow wire between engine and switch and connect brown lighter wire to brown wire between engine and switch with supplied wire splices.



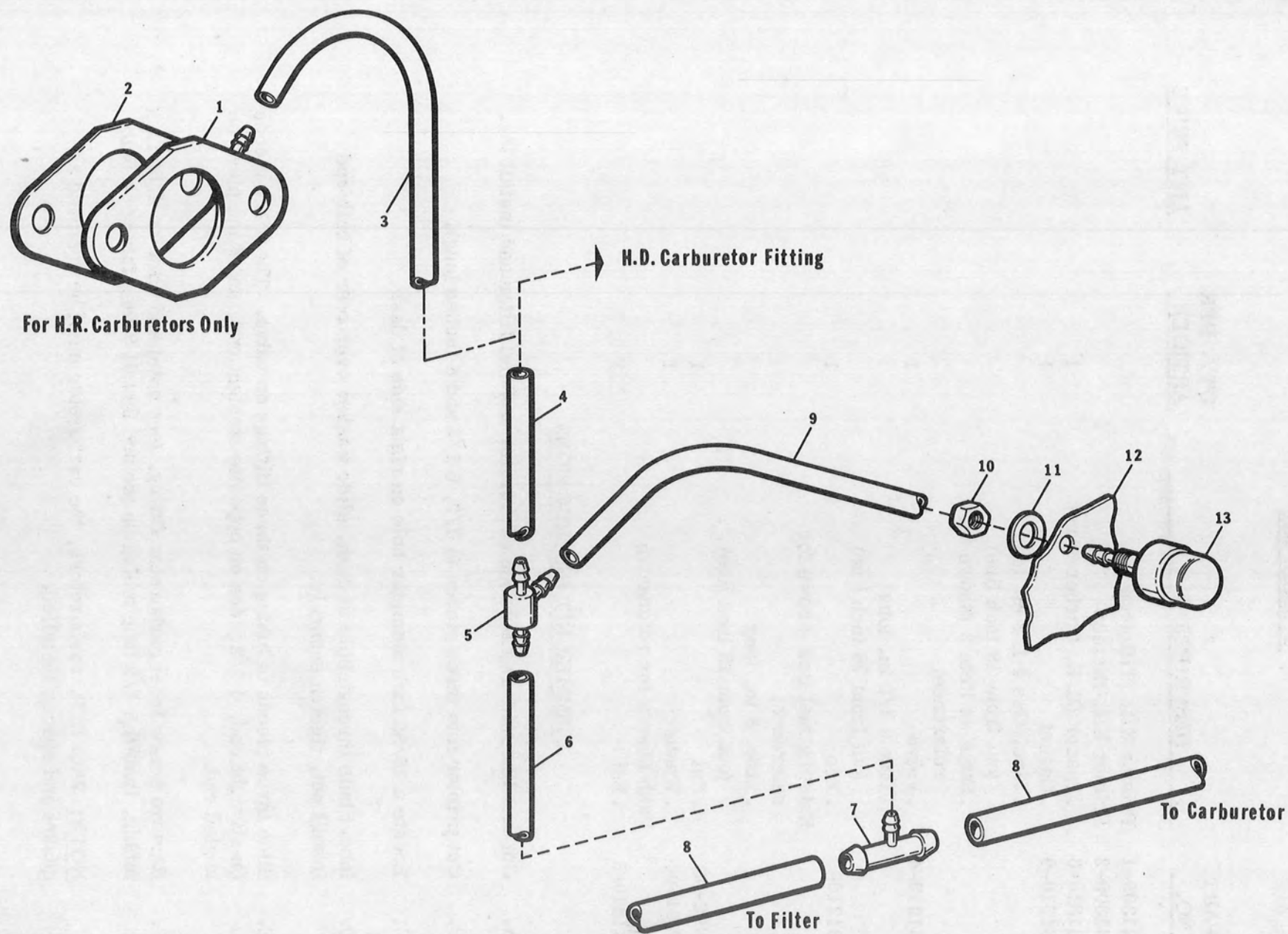


FIGURE 6-10. PRIMER KIT

PRIMER KIT

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ARTICLE</u>	<u>LIST PRICE</u>
	31309-1	Primer Kit, (Tillotsen)		
	31309-2	Primer Kit, (Keihin)		
1	31310-6	.Spacer (H. R. Carburetors)	1	
2	31310-9	.Gasket	1	
3		.Line, Gas 4 1/2 in. long (cut from 18 inch line)		
4		.Same as item 3 (Shown for reference)		
5	31310-4	.Valve	1	
6		.Line 5 1/2 in. long (cut from 18 inch line)		
7	31310-5	.Tee	1	
8		Existing fuel line (Shown for reference)		
9		.Line, 8 in. long (cut from 18 inch line)		
10	N06-06	.Nut	1	
11	W01-06	.Washer	1	
12		Dash (Shown for reference)		
13	31310-8	.Bulb	1	

PRIMER KIT INSTRUCTIONS

- A. Cut fuel line mid-way between carburetor and fuel filter and install tee.
- B. Cut primer into three pieces (4 1/2, 5 1/2 and 8 inches long).
- C. Locate a 15/32 inch diameter hole on right side of dash.
- D. Insert bulb through hole in dash, slide washer over rear of bulb and install nut, tighten securely.
- E. Slide three pieces of tubing on three fittings on valve. The 5 1/2 pieces on straight end, 4 1/2 piece on opposite straight end, and 8 in. piece on angled end.
- F. Remove screw from carburetor fitting, (see note) and slide on 4.50 long tubing, install 5 1/2 long tubing on tee and install 8 long tubing on bulb.

NOTE: With H. R. carburetors, the carburetor must be removed and gasket and spacer installed.

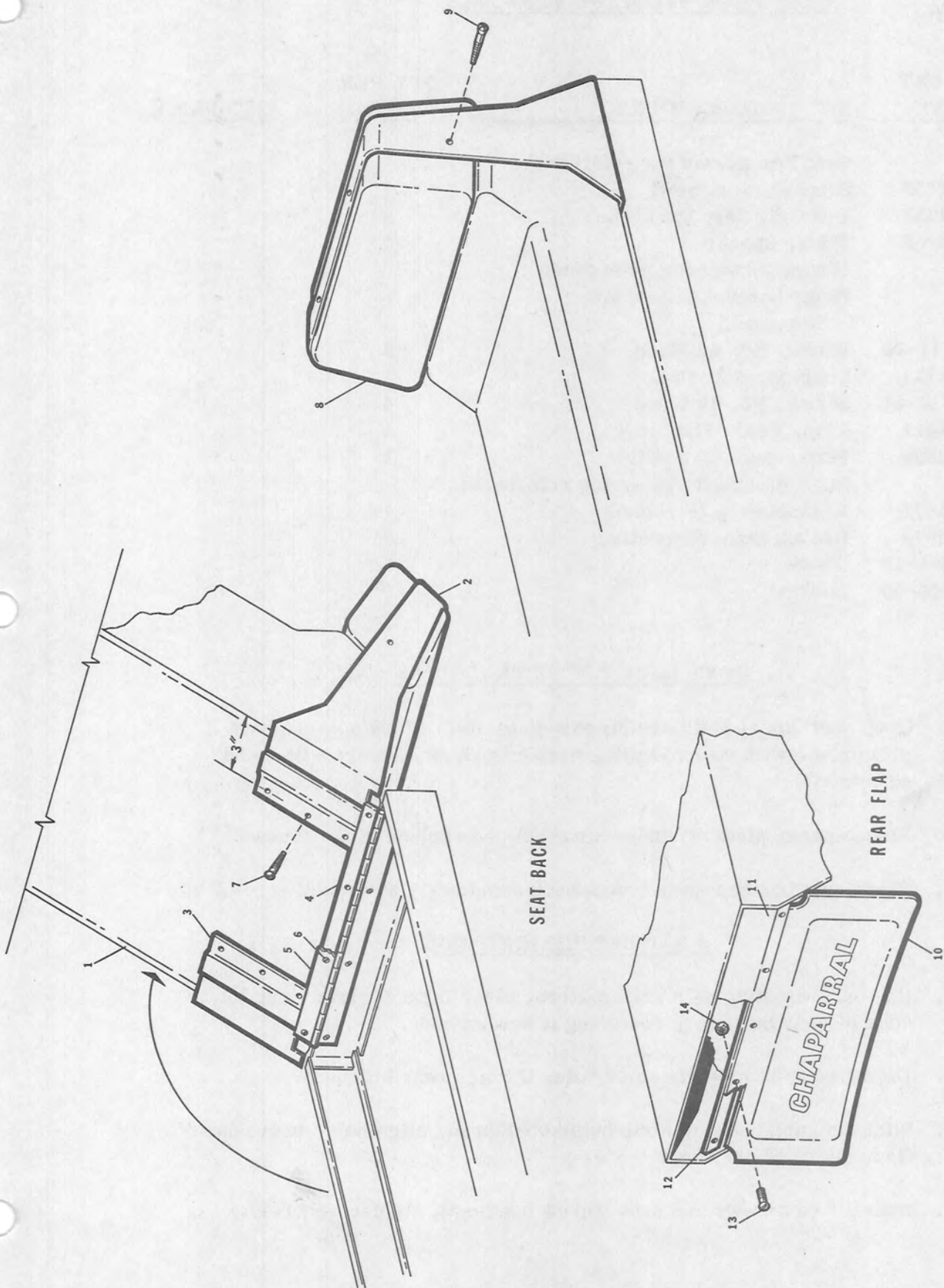


FIGURE 6-11. SEAT BACK AND FLAP KIT

SEAT BACK AND REAR FLAP KITS

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ASSY.</u>	<u>LIST PRICE</u>
1		Seat Box (Shown for reference)		
2	31753	Support, Seat back	1	
3	31751	Bracket, Seat Mounting	2	
4	31755	Plate, Spacer	1	
5		Hinge, (Shown for reference)		
6		Hinge Screws (Shown for reference)		
7	M11-10	Screw, No. 10 Wood	6	
8	31754	Cushion, Seat Back	1	
9	M10-24	Screw, No. 10 Wood	4	
10	31621	Flap, Rear (Firebird)	1	
	32621	Flap, Rear (Executive)	1	
11		Rear Bulkhead (Shown for reference)		
12	31672	Backup Strip (Firebird)	1	
	32672	Backup Strip (Executive)	1	
13	M04-12	Screw	5	
14	M06-06	Locknut	5	

SEAT BACK KIT INSTRUCTIONS

- A. Open seat box and remove hinge screws (6). Place seat support (2) in place with seat mounting brackets (3) and secure with wood screws (7).
- B. Place spacer plate (4) under hinge (5) and replace hinge screws.
- C. Close seat box and secure seat back cushion (8) with wood screws (9).

FLAP KIT INSTRUCTIONS

- A. Use back-up strip as a drill pattern, place edge of strip along lower edge of rear bulkhead, centering it across body.
- B. Drill five 9/32 inch diameter holes through rear bulkhead.
- C. Slide flap and back-up strip behind bulkhead, align holes in bulkhead flap, and back-up strip.
- D. Install five screws and nuts (screw head out), tighten securely.

ROCKY MOUNTAIN SKI KIT

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ASSY.</u>	<u>LIST PRICE</u>
1	31771	Ski Weldment	2	
2	31774	Skag Weldment	2	
3	N06-07	Nut	2	

SPORT WINDSHIELD KIT INSTRUCTIONS (Not Illustrated)

- A. Remove all screws that hold existing windshield to hood and remove windshield.
- B. Align holes in hood with holes in sport windshield and replace all screws, tighten all screws securely.

SPORT WINDSHIELD KIT

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY. PER ASSY.</u>	<u>LIST PRICE</u>
1	31414-3	Windshield	1	
2	31415-3	Trim	1	

ROCKY MOUNTAIN SKI KIT INSTRUCTIONS (Not Illustrated)

- A. Remove hardware holding existing ski to spring and remove ski.
- B. Place Rocky Mountain ski in place and reinstall hardware as originally assembled.

ROCKY MOUNTAIN S&I KIT

ITEM NO.	PART NO.	DESCRIPTION	QTY. PER KIT	LIST PRICE
1	1171	1/2" W/DRUM	1	2.50
2	2172	1/2" W/DRUM	1	2.50
3	2173	1/2" W/DRUM	1	2.50

SEMI-ANNUAL KIT INSTRUCTIONS (SEE INSTRUCTIONS)

- Remove all screws that hold existing windshield in place and remove windshield.
- Align kit in hole with holes in front windshield and glass all screws, remove all screws except:

SEMI-ANNUAL KIT

ITEM NO.	PART NO.	DESCRIPTION	QTY. PER KIT	LIST PRICE
1	2174	1/2" W/DRUM	1	2.50
2	2175	1/2" W/DRUM	1	2.50

ROCKY MOUNTAIN S&I KIT INSTRUCTIONS (SEE INSTRUCTIONS)

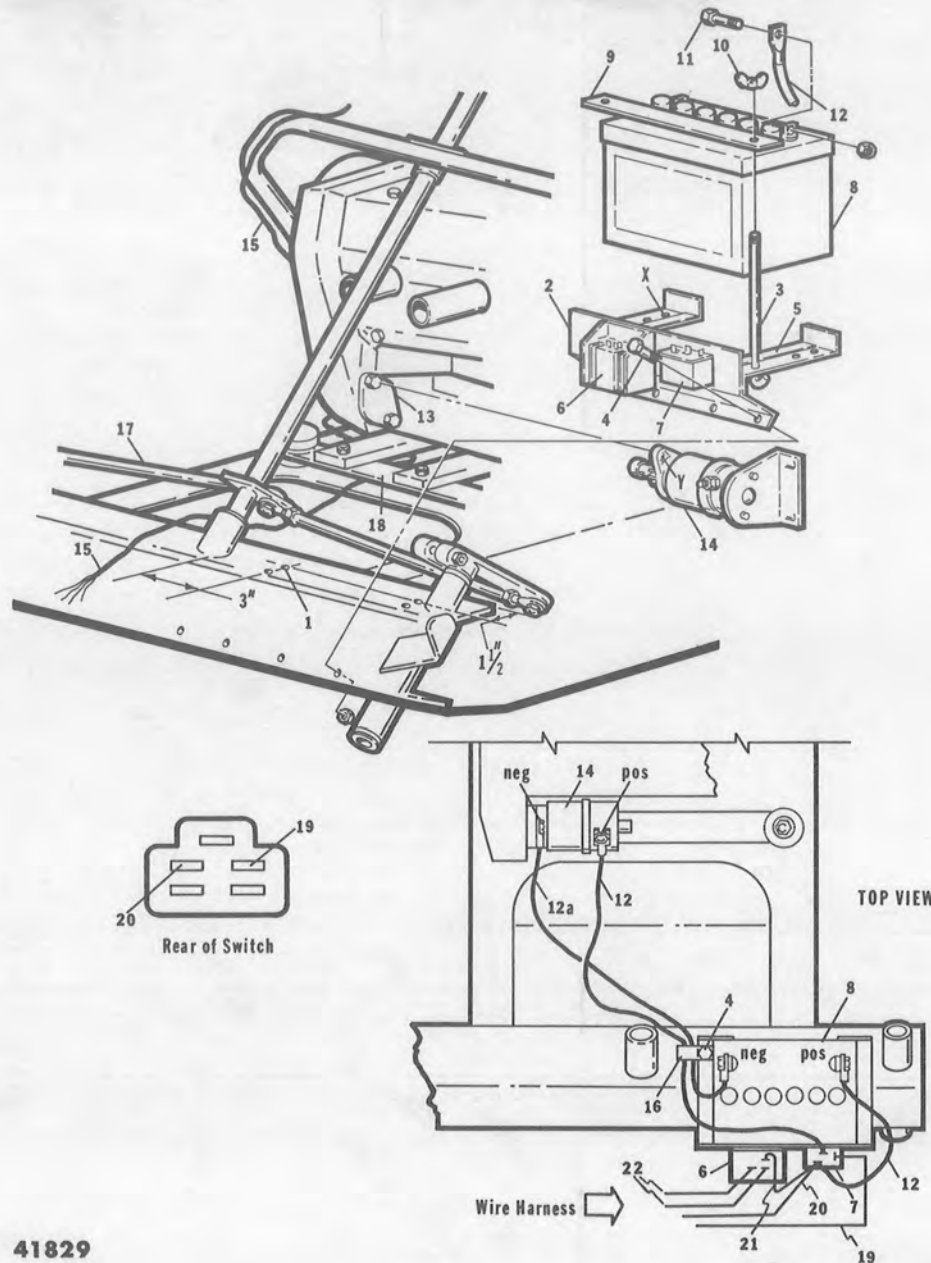
- Remove windshield behind existing kit in upper and lower kit.
- Align kit in hole with holes in front windshield and glass all screws, remove all screws except:

SECTION VI

DEALER INSTALLED EQUIPMENT

The following Accessory Kits will be available for the 1972 Snowmobile line:

Electric Start Kit - Hirth Engines
Electric Start Kit - Chaparral Engines
Shock Kit
Tachometer Kit
Speedometer Kit
Seat Back Kit
Flap Assembly Kit
Stirrup Kit.



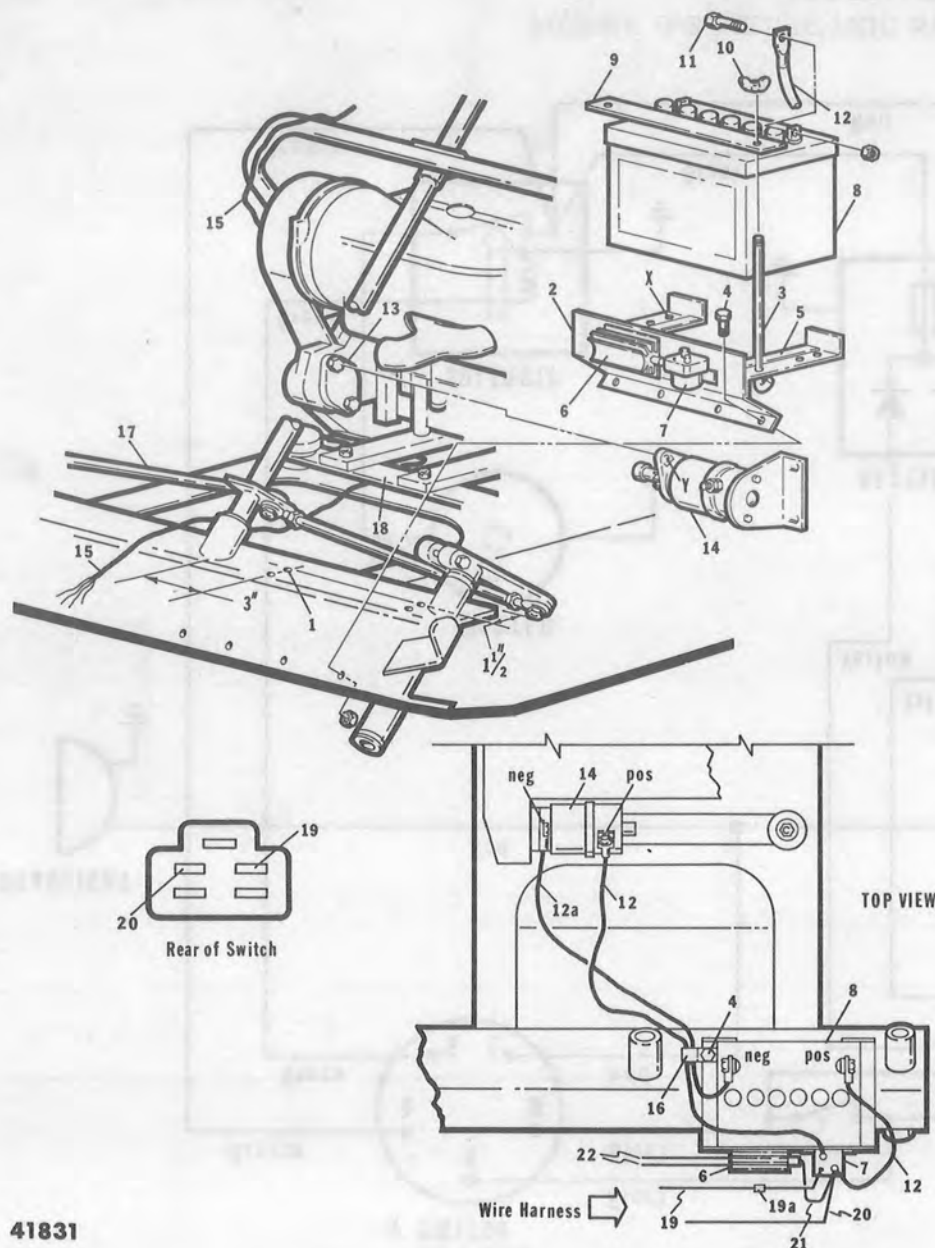
1. DRILL A 9/32" DIA HOLE IN SPINDLE CHANNEL PER DIMENSIONS SHOWN.
2. LOCATE BRACKET ASSY 2 ON SPINDLE CHANNEL. USE THE 9/32" DIA HOLE TO LOCATE BRACKET PROPERLY, DRILL THE REMAINING SEVEN 9/32" HOLES.
3. INSERT "J" BOLTS 3.
4. INSTALL SEVEN BOLTS 4 AND NUTS. DO NOT INSTALL A BOLT IN HOLE X.
5. PLACE ADHESIVE-BACKED STRIPS 5 ON BRACKET 2.
6. SET BATTERY 8 (NOT SUPPLIED) IN PLACE, LAY HOLD DOWN 9 OVER BATTERY 8, INSERT "J" BOLTS 3 THRU HOLD DOWN 9 AND SCREW ON WING-NUT 10 SECURELY.
7. REMOVE COVER PLATE 13 FROM ENGINE AND INSTALL START MOTOR 14 WITH ONE BOLT, LEAVE ONE BOLT OUT OF "Y" HOLE.
8. BOLT BATTERY CABLE 12 TO "H" TERMINAL OF BATTERY.
9. INSTALL WIRING HARNESS 15.
10. RUN HARNESS THRU CABLE CLAMP 16 AND MOUNT CLAMP WITH LAST BOLT 4 AND NUT.
11. RUN HARNESS UNDER TIE ROD 17, UNDER MOTOR MOUNT BAR 18, AND THEN FOLLOW THE EXISTING WIRE HARNESS TO SWITCH AND ENGINE. REMOVE TAPE FROM YELLOW ENGINE WIRE. ATTACH TO YELLOW HARNESS WIRE WITH WIRE SPLICE. ALSO UNPLUG YELLOW WIRE FROM SWITCH, CUT OFF TERMINAL AND CONNECT TO REMAINING YELLOW HARNESS WIRE SPLICE. SEE SCHEMATIC FOR WIRING CONNECTIONS TO RECT 6 AND SOLENOID 7.
12. PLUG ORANGE 20 AND GREEN 19 WIRES INTO SWITCH. (SEE DWG)
13. CONNECT NEG CABLE 12a TO STARTER WITH BOLT IN "Y" HOLE AND POS CABLE 12 TO STARTER.
14. REMOVE 60 W HEADLIGHT BULB, REPLACE WITH 45 W BULB PROVIDED.

41953. ELECTRIC START KIT-HIRTH

ITEM	PART NO.	DESCRIPTION	QUANTITY
1	41829	Parts Location Drawing Location Only	
2	31628-1	Bracket Assembly	1
3	31633	J-Bolt	2
4	B03-12	Bolt	8
	N06-06	Nut	8
5	31635	Strip, Adhesive Back	2
6	41625	Rectifier	1
7	41626	Solenoid	1
8		Battery (Not supplied-Gould SN9L or equal)	
9	31632	Hold Down, Battery	1
10	N12-06	Wing Nut	2
11	B03-16	Bolt	2
	N06-06	Nut	2
12	31629-3	Cable Assembly	1
13		Location Only	
14	31637-1	Starter	1
15	41649-1	Wiring Harness	1
16	31643	Cable Clamp	1
17		Location Only	
18		Location Only	
19		Location Only	
20		Location Only	
21		Location Only	
22		Location Only	
	31642	Light Bulb, 45 Watt	1
	31437	Wire Tie	4

FIGURE 6-1. HIRTH ELECTRIC START KIT

41829



1. DRILL A 9/32" DIA HOLE IN SPINDLE CHANNEL PER DIMENSIONS SHOWN.
2. LOCATE BRACKET ASSY 2 ON SPINDLE CHANNEL. USE THE 9/32" DIA HOLE TO LOCATE BRACKET PROPERLY, DRILL THE REMAINING SEVEN 9/32" HOLES.
3. INSERT "J" BOLTS 3 .
4. INSTALL SEVEN BOLTS 4 AND NUTS, DO NOT INSTALL A BOLT IN HOLE X.
5. PLACE ADHESIVE-BACKED STRIPS 5 ON BRACKET 2 .
6. SET BATTERY 8 (NOT SUPPLIED) IN PLACE, LAY HOLD DOWN 9 OVER BATTERY 8 . INSERT "J" BOLTS 3 THRU HOLD DOWN 9 AND SCREW ON WING NUT 10 SECURELY.
7. REMOVE COVER PLATE 13 FROM ENGINE AND INSTALL START MOTOR 14 WITH ONE BOLT, LEAVE ONE BOLT OUT OF "Y" HOLE.
8. BOLT BATTERY CABLE 12 TO "+" TERMINAL OF BATTERY.
9. INSTALL WIRING HARNESS 15 .
10. RUN HARNESS THRU CABLE CLAMP 16 AND MOUNT CLAMP WITH LAST BOLT 4 AND NUT.
11. RUN HARNESS UNDER TIE ROD 17 , UNDER MOTOR MOUNT BAR 18 , AND THEN FOLLOW THE EXISTING WIRE HARNESS TO SWITCH AND ENGINE. REMOVE TAPE FROM YELLOW ENGINE WIRE. ATTACH TO YELLOW HARNESS WIRE WITH WIRE SPLICE. ALSO UNPLUG YELLOW WIRE FROM SWITCH, CUT OFF TERMINAL AND CONNECT TO REMAINING YELLOW HARNESS WIRE SPLICE. SEE SCHEMATIC FOR WIRING CONNECTIONS TO RECT 6 AND SOLENOID 7 .
12. PLUG ORANGE 20 AND GREEN 19 WIRES INTO SWITCH. (SEE DWG)
13. CONNECT NEG CABLE 12a TO STARTER WITH BOLT IN "Y" HOLE AND POS CABLE 12 TO STARTER.
14. REMOVE 60 W HEADLIGHT BULB, REPLACE WITH 45 W BULB PROVIDED.

41952 ELECTRIC START KIT - CHAPARRAL

ITEM	PART NO.	DESCRIPTION	QUANTITY
1	41831	Parts Location Drawing Location Only	
2	41628-3	Bracket Assembly	1
3	31633	J-Bolt	2
4	B013-12	Bolt	8
	N06-06	Nut	8
5	31635	Strip, Adhesive Back	2
6	41625	Rectifier	
7	41626	Solenoid	
8		Battery (Not supplied - Gould SN9L or equal)	
9	31632	Hold Down, Battery	1
10	N12-06	Wing Nut	2
11	B03-16	Bolt	2
	N06-06	Nut	2
12	31629-3	Cable Assembly	1
13		Location Only	
14	41637-3	Starter	1
15	41649-3	Wiring Harness	1
16	31643	Cable Clamp	1
17		Location Only	
18		Location Only	
19		Location Only	
20		Location Only	
21		Location Only	
22		Location Only	
	31642	Light Bulb, 45 Watt	4
	31426	Wire Splicer	4
	31437	Wire Tie	4

FIGURE 6-3. FUJI ELECTRIC START KIT

41831

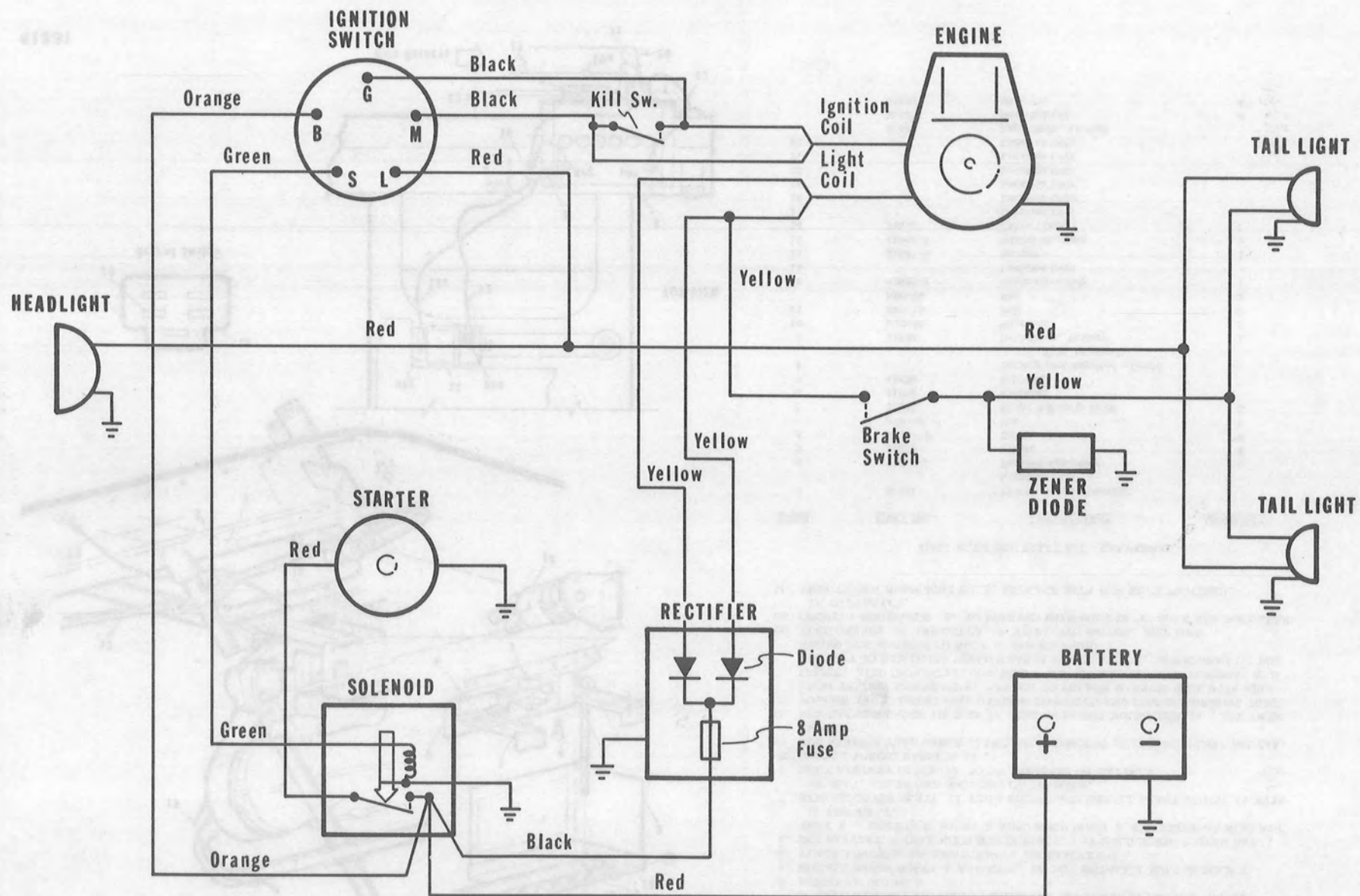


FIGURE 6-2. ELECTRIC START TWIN CYLINDER
SCHEMATIC

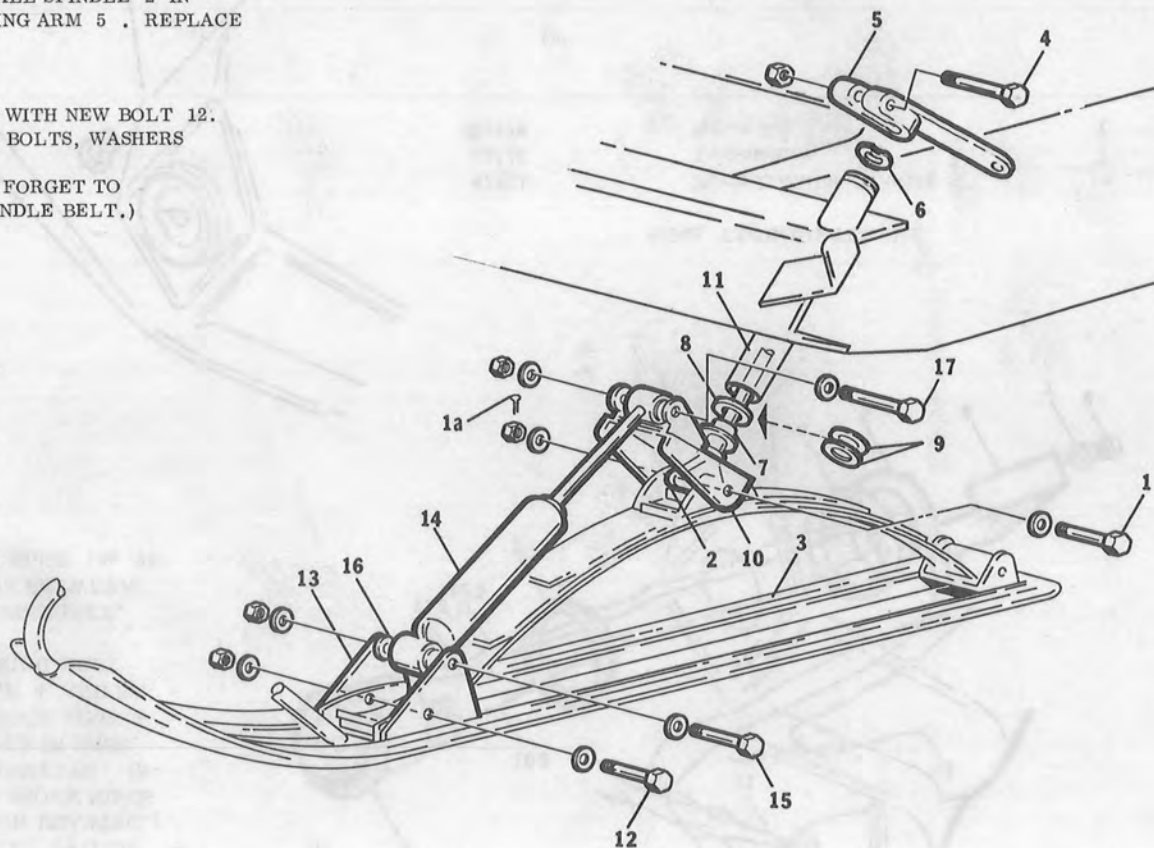
41829 / 41831
sheet 2

1. REMOVE BOLTS 1 HOLDING SPRING BRACKET TO SPINDLE 2 , REMOVE SKI ASSEMBLY 3 FROM SNOWMOBILE.
2. REMOVE STEERING ARM BOLT 4 AND NUT, PULL STEERING ARM 5 FROM SPINDLE, AND REMOVE SPINDLE 2 .
3. PULL WAVE WASHER 6 , BUSHING 7 , AND 1/4" SPACER 8 .
4. REPLACE 1/4" SPACER 8 WITH TWO WASHERS 9 . REINSTALL BUSHING 7 .
5. SLIDE BRACKET 10 OVER SPINDLE 2 . REINSTALL SPINDLE 2 IN TUBE, REPLACE WAVE WASHER 6 , AND STEERING ARM 5 . REPLACE STEERING ARM BOLT 4 AND NUT.
6. REMOUNT SKI ASSEMBLY WITH NEW BOLT 1 .
7. REMOVE BOLT FROM FRONT SPRING BRACKET.
8. MOUNT RIGHT 13a AND LEFT 13b SKI BRACKET WITH NEW BOLT 12.
9. PLACE SHOCK 14 IN POSITION AND MOUNT WITH BOLTS, WASHERS AND NUTS PROVIDED.

(AS A SAFETY MEASURE, DO NOT FORGET TO INSTALL COTTER PIN 1a ON SPINDLE BELT.)

41740 SHOCK KIT

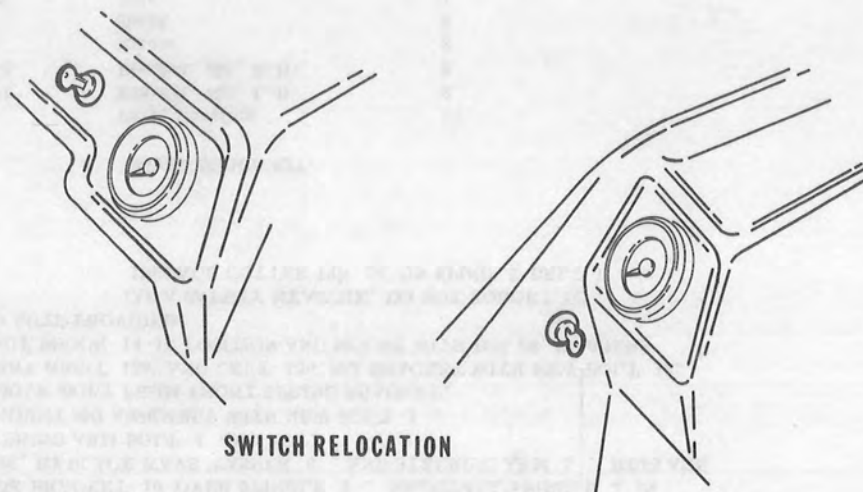
41828	Parts Location	--
31742-1	Bracket, Ski, L.H.	2
31742-2	Bracket, Ski, R.H.	2
31744	Spacer	2
40664	Shock	2
B08-52	Bolt	1
B01-52	Bolt	1
B08-48	Bolt	2
31613-2	Bolt	2
W01-08	Washer	8
N06-08	Nut	1
N08-18	Nut	1
P26112	Cotter Pin	2
31741	Bracket, Weldment	2
31259	Washer	8
W01-09	Washer	8
B08-52	Bolt	2
N06-09	Nut	2



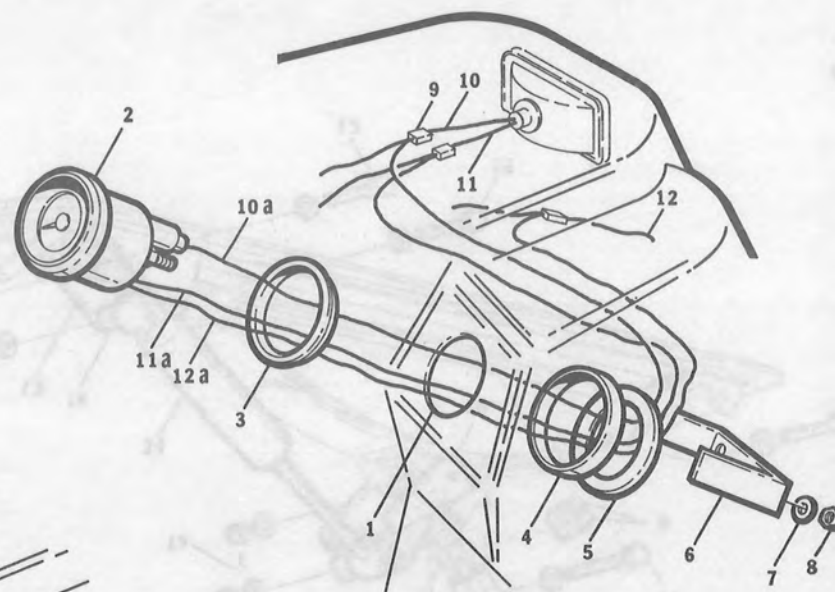
41828

FIGURE 6-4. SHOCK KIT

1. LOCATE CENTER OF 3 INCH DIAMETER HOLE ON LEFT OR RIGHT SIDE OF DASH DEPENDING ON OTHER OPTIONS. (IF TACHOMETER 2 IS LOCATED ON RIGHT SIDE, SWITCH MUST BE MOVED. SEE SWITCH RELOCATION DRAWING.)
2. DISASSEMBLE "U" CLAMP 6 AND RUBBER SHOCK RINGS 3 and 4 AND BACK-UP RING FROM TACHOMETER. INSERT SHOCK RING HALF 3 INTO 3" DIA HOLE IN DASH.
3. SLIDE TACHOMETER HEAD 2 THROUGH SHOCK RING 3 AND INSTALL SHOCK RING REMAINING HALF 4 AND RE-ASSEMBLE "U" CLAMP. NOTE: BACK UP RING MUST HAVE FLANGED SIDE OUT.
4. CONNECT THREE WIRES WITH SPLICES 9 PROVIDED. CONNECT RED 10a AND BLACK 11a WIRES BETWEEN HEADLIGHT AND CONN SPLICE. CONNECT BLUE 12a TO BROWN 12 WIRE FROM ENGINE.



SWITCH RELOCATION

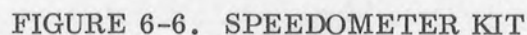


41943 TACHOMETER KIT

41821	Parts Location Drawing	--
41646	Tachometer	1
31426	Splice Kit	1

41821

FIGURE 6-5. TACHOMETER KIT

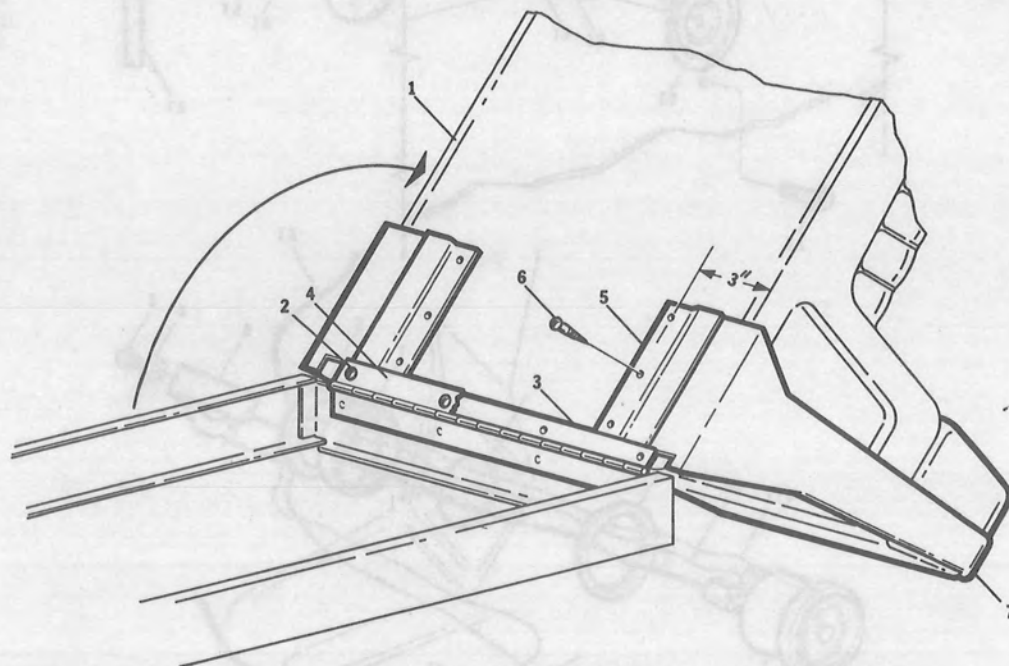


1. LOCATE CENTER OF 3 INCH DIAMETER HOLE ON LEFT SIDE OF DASH.
2. DISASSEMBLE "U" CLAMP 6 AND RUBBER SHOCK RINGS 3 and 4 FROM SPEEDOMETER 2 . INSERT SHOCK RING 3 INTO 3 INCH DIAMETER HOLE IN DASH.
3. SLIDE SPEEDOMETER HEAD 2 THROUGH SHOCK RING 3 . INSTALL SHOCK RING REMAINING HALF 4 AND REASSEMBLE "U" CLAMP 6 . NOTE: BACK UP RING TO HAVE FLANGE SIDE OUT.
4. CONNECT TWO WIRES 9a and 11a WITH WIRE SPLICES 9 PROVIDED.
5. REMOVE THREE NUTS 15 FROM RIGHT SIDE FRONT AXLE FLANGETTE AFTER REMOVING TENSION FROM TRACK.
6. INSERT DRIVE ADAPTER 18 HOLE PROVIDED IN AXLE. INSERT DRIVE PIN 19 INTO DRIVE ADAPTER.
7. SLIDE ANGLED DRIVE JOINT 20 and 21 OVER DRIVE PIN 19 AND ATTACH WITH THREE FLANGETTE NUTS 15 AND BOLTS 17 .
8. ATTACH CABLE 12 TO ANGLED DRIVE JOINT 21 AND THE BACK OF SPEEDOMETER HEAD 2 .
9. RETIGHTEN TRACK.

41944 SPEEDOMETER KIT

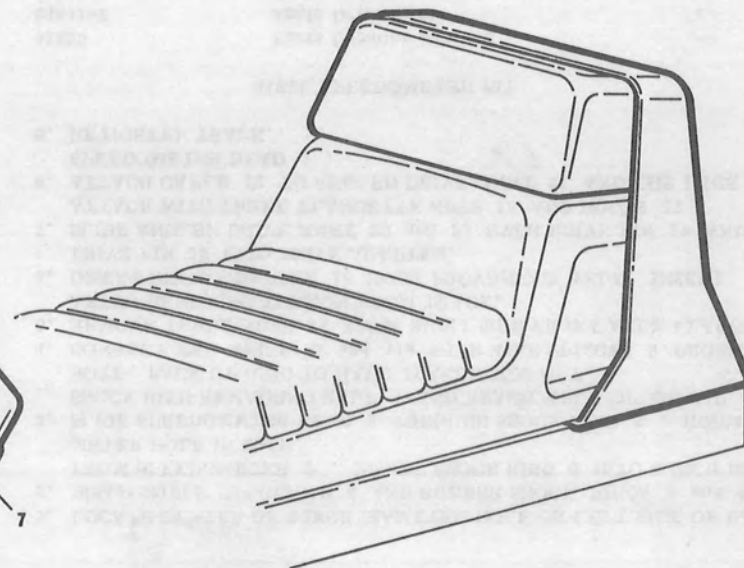
41825	Parts Location Drawing	--
41641-2	Angle Drive Joint	1
41641-1	Drive, Adapter	1
41641-6	Adapter Receptacle	1
40641-5	Dial Housing	1
41641-7	Drive Pin	1
31426	Splice	2

1. OPEN SEAT, REMOVE FOUR SEAT HINGE SCREWS.
2. PLACE SPACER PLATE 3 BETWEEN HINGE AND SEAT, REPLACE FOUR SEAT HINGE SCREWS.
3. PLACE SEAT MOUNTING BRACKET 5 IN PLACE.
4. SECURE SEAT MOUNTING BRACKET 5 WITH 3 EACH WOOD SCREWS 6 .
5. SLIDE SEAT BACK 7 INTO PLACE AND CLOSE SEAT.



41948 SEAT BACK KIT

41832	Parts Location Drawing	1
31751	Bracket, Seat Mounting	2
41752	Seat Back Assembly	1
31755	Plate, Spacer	1
M11-10	Screw, Wood, No. 10	6



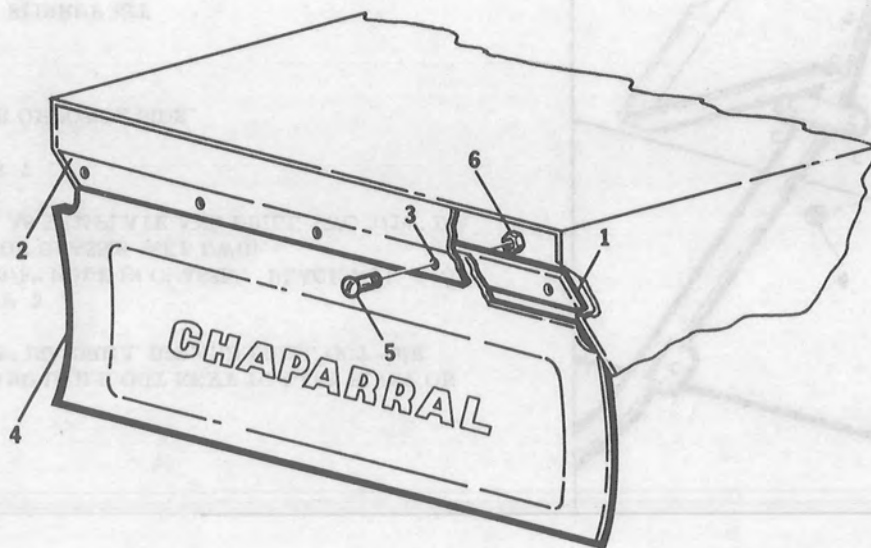
41832

FIGURE 6-7. SEAT BACK KIT

1. USE BACK-UP STRIP 1 AS A DRILL PATTERN. PLACE EDGE OF STRIP ALONG LOWER EDGE OF REAR BULKHEAD, CENTER STRIP ON BODY.
2. DRILL FIVE 9/32 INCH DIAMETER HOLES THROUGH BULKHEAD.
3. SLIDE FLAP 4 AND STRIP 1 BEHIND BULKHEAD, ALIGN HOLES IN BULKHEAD, FLAP 4, AND STRIP 1.
4. INSTALL FIVE SCREWS 5 THROUGH BULKHEAD, FLAP AND STRIP. PLACE NUTS 6 ON SCREWS 5 FROM INSIDE OF BODY.

41946 FLAP ASSEMBLY KIT

41822	Parts Location Diagram	--
31620	Flap Assembly (for 15 inch track)	
31621	Flap, Rear	1
31672	Backing Strip	1
M20-12	Screw	5
N06-06	Locknut	5



41822

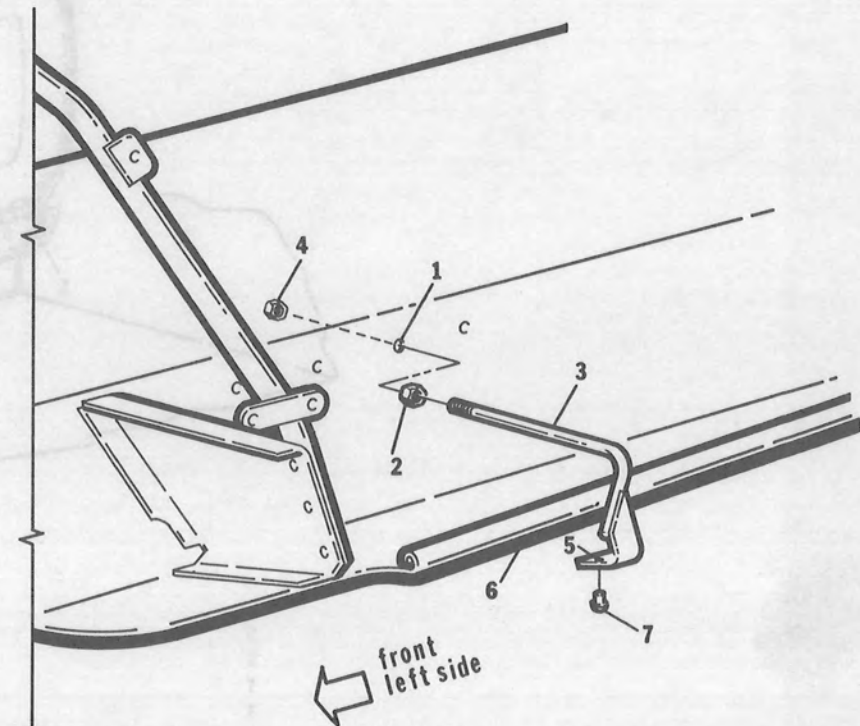
FIGURE 6-8. FLAP ASSEMBLY KIT .

1. USE 3/16" DIA DRILL BIT AND DRILL OUT NEXT TO LAST RIVET ON SIDE OF CHASSIS. USE 3/8" DIA DRILL BIT AND DRILL OUT THE RIVET HOLE 1 .
2. PLACE NUT 2 ON STIRRUP 3 .
3. INSERT STIRRUP 3 INTO 3/8" HOLE IN CHASSIS. PLACE NUT 4 ON STIRRUP 3 FROM INSIDE OF CHASSIS (SEE DWG).
4. USE HOLES IN STIRRUP 5 AS TEMPLATE AND DRILL TWO 3/16" DIA HOLES IN CHASSIS WING 6 .
5. INSTALL TWO POP RIVETS 7 .
6. SECURE NUTS 2 and 4 .
7. REPEAT PROCEDURES FOR OPPOSITE SIDE.

41954 STIRRUP KIT

41835	Parts Location Diagram
41470-1	Stirrup Weldment, L.H.
41470-2	Stirrup Weldment, R.H.
N06-08	Nut
R02-02	Rivet

1
1
2
4

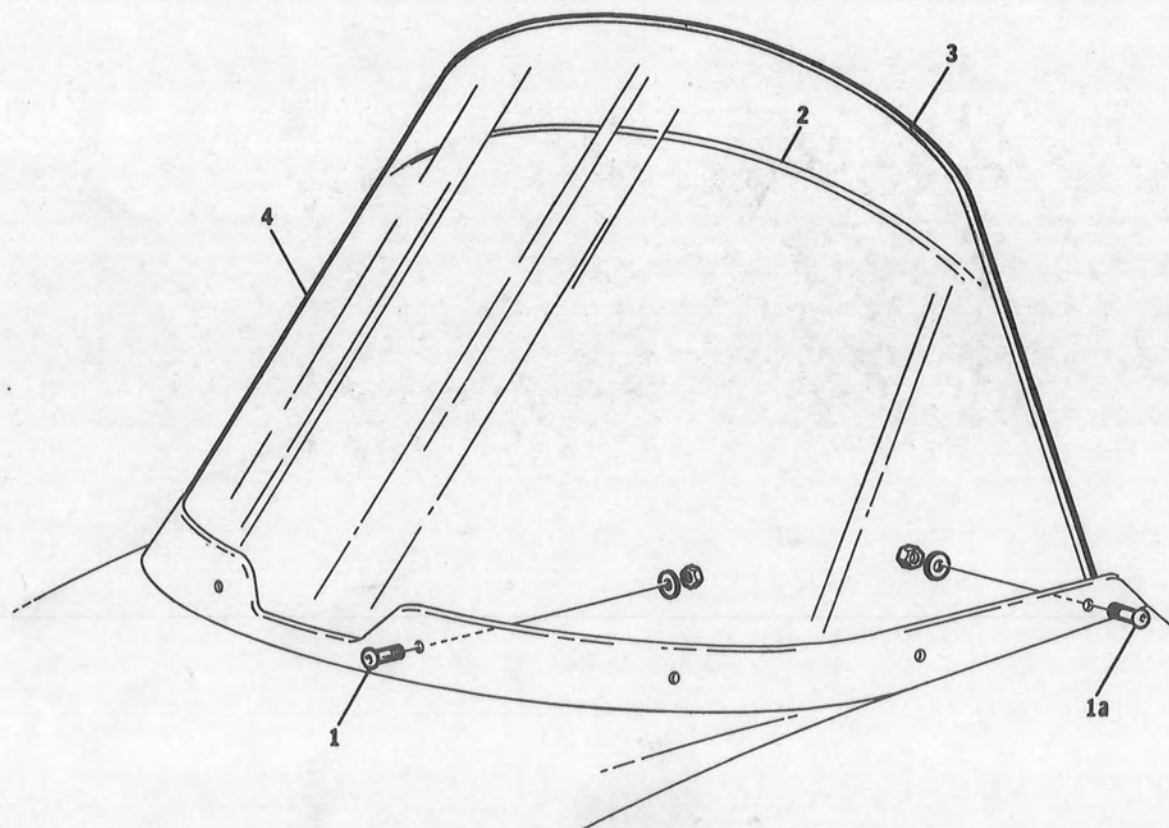


41835

FIGURE 6-9. STIRRUP KIT

1. REMOVE 8 WINDSHIELD SCREWS 1 and 1a .
2. REMOVE EXISTING WINDSHIELD 2 AND TRIM.
3. PLACE TRIM 3 AROUND EDGE OF MAXI WINDSHIELD 4 .
4. PLACE MAXI WINDSHIELD IN POSITION AND REPLACE 8 WINDSHIELD SCREWS 1 and 1a .

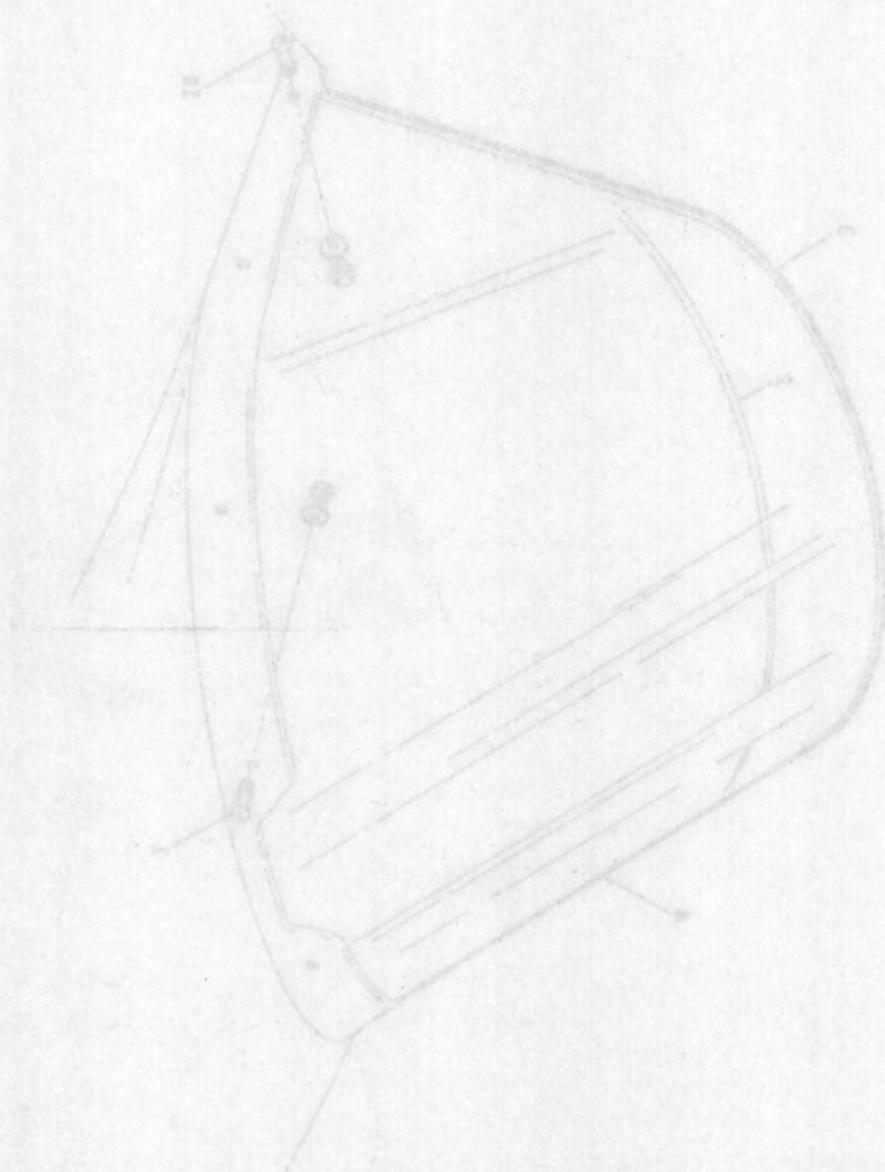
41955	Maxi - Windshield Kit
41826	Parts Location Drawing
31414-7	Windshield
31415-5	Trim



41826

FIGURE 6-10. MAXI WINDSHIELD KIT

FIGURE 8-16. WPAH AIRCRAFT



1. WPAH AIRCRAFT
2. WPAH AIRCRAFT
3. WPAH AIRCRAFT
4. WPAH AIRCRAFT
5. WPAH AIRCRAFT
6. WPAH AIRCRAFT
7. WPAH AIRCRAFT
8. WPAH AIRCRAFT
9. WPAH AIRCRAFT
10. WPAH AIRCRAFT
11. WPAH AIRCRAFT

1. WPAH AIRCRAFT
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