

3701- engine shown with dual ignition and 90 degree exhaust manifold

The 3701 is Hirth's first offering of a water-cooled engine for the aircraft market.

A narrow profile and single tuned exhaust used for a 113 cylinders allows the 3701 to be used in compact engine compartments. Pistons fire 120 degrees apart resulting in very quiet & smooth operations.

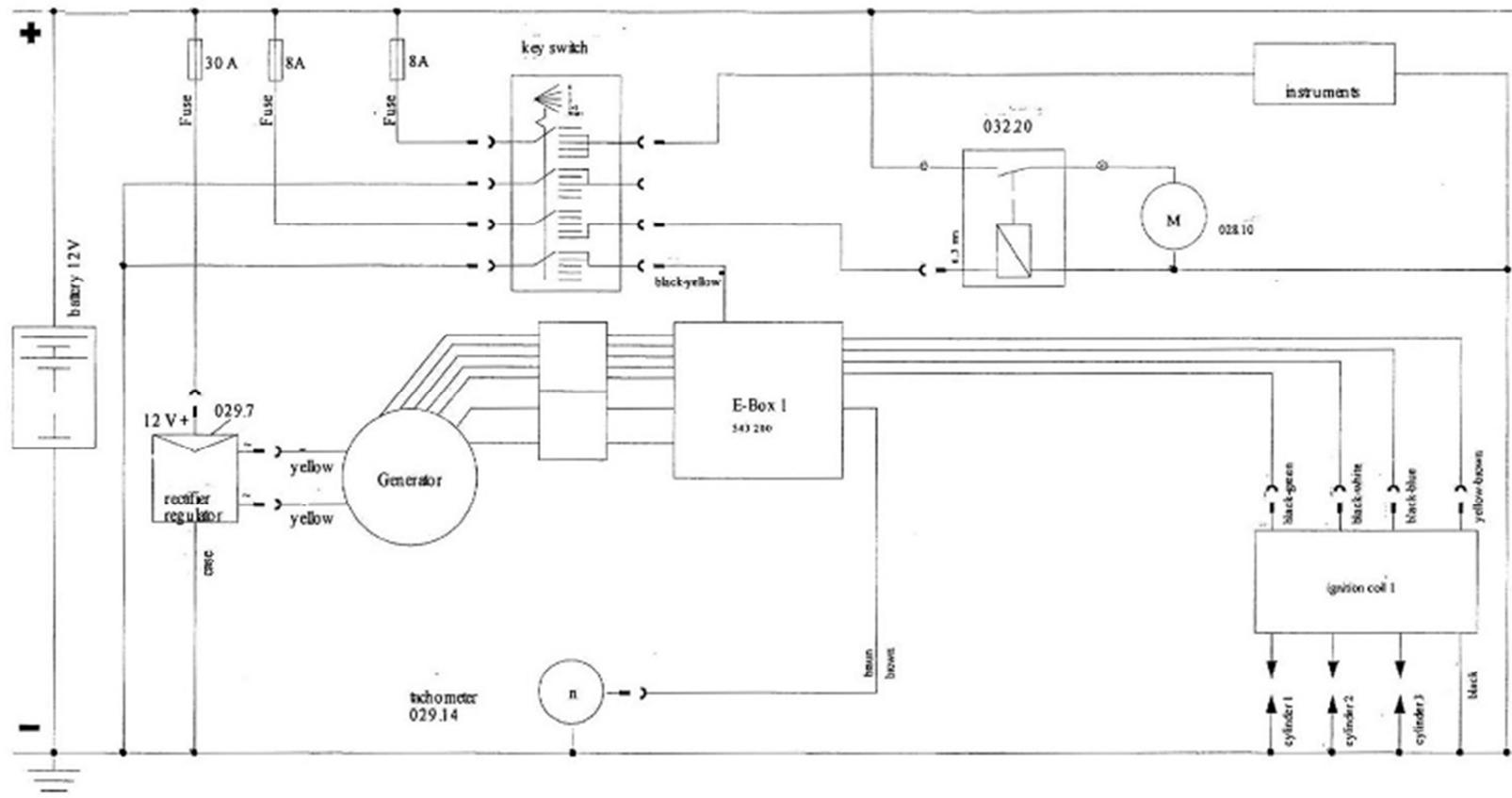
3701 incorporates Al-Nikasil coated cylinders for superior performance and reliability. Nikasil provides for a super low coefficient of friction, reducing engine heat and wear. The pistons and cylinders expand at the same rate thus providing for a seizure resistant engine. 3701 crankshaft is 4130 chromemolly steel. Heads, cylinders, rings, block casting, connecting rods and associated components are all of the highest grade alloys available today.

#### Technical Data:

Model:	3701 - 2 cycle, three cylinder inline Reed valve induction.	Carburetion:	Electronic suction pipe fuel injection
Bore:	76 mm	Fuel Pump:	90 PST 12VDC electric fuel pump.
Stroke:	69 mm	Lubrication:	Premix -40:1 or optional oil injection
Displacement:	939 cc	Rotation:	Counter clockwise, viewed from output end
Compression:	9.5 : 1	Starter:	12 VDC electric / 240 watt generator
HP Output:	100hp @ 6000 rpm	Cooling:	Liquid cooled.
Peak Torque:	88 ft. lbs. @ 5500 rpm	Weight:	108 lbs, including complete exhaust & starter.
Ignition:	Single CDI (Capacitive Discharge Ignition)		
TBO	1,000 Hrs. Rated at 75% power		

#### 3701 TECHNICAL DATA

Fuel Injected Engine	3701S--100Hp	Carbureted Engine	
Ign.Timing@2000 - Fuel injected	18°	Ign. Timing@2000	16°
Spark Plug Heat VI.	280	No. of Carburetors	3
Spark Plug Gap	.020-.024	Carburetor ID #	Dellorto PHBE 34 BD8
No. of Injectors	Three	Main Jet	165
Do Not Exceed RPM	6300	Idle Jet	50
Peak HP RPM	6000	Needle Jet	AB 268
HP @ Peak RPM	100	Needle Position	#1 Top
Peak Torque RPM	5500	Needle #	K43
Peak Torque Ft.Lb.	85	Float	8.5
Maximum CHT	390°F		
Maximum EGT @ full power	1256°F		
Maximum EGT @ cruise power	1330°F		
Maximum coolant temperature	240°F		
Minimum coolant temperature	160°F		



This wiring diagram is to be considered as a proposal for wiring

General size of line wire: 1,5 mm<sup>2</sup>

Size of line from/to E-Starter: 16 mm<sup>2</sup>

Rectifier-regulator mount on cooling body (ca. 250x200x5mm)

\* Minimum distance to other current wires: 100 mm (4 in.)

f						Tag	Name
e						03.07.01	Rögele
d						03.07.01	Rögele
c						Wiring diagram CDI - single ignition	
b						PVL	
a					Tag	3701	
						Nr.	
		-	-				

# Spare part list

## Engine

**3701**

**100 HP**

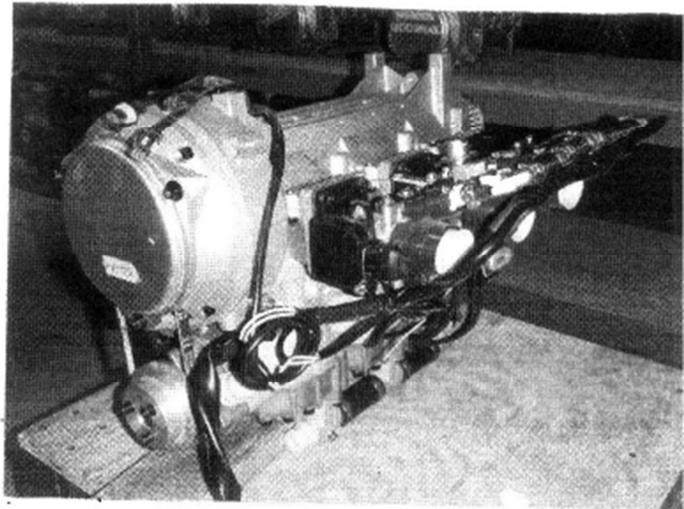
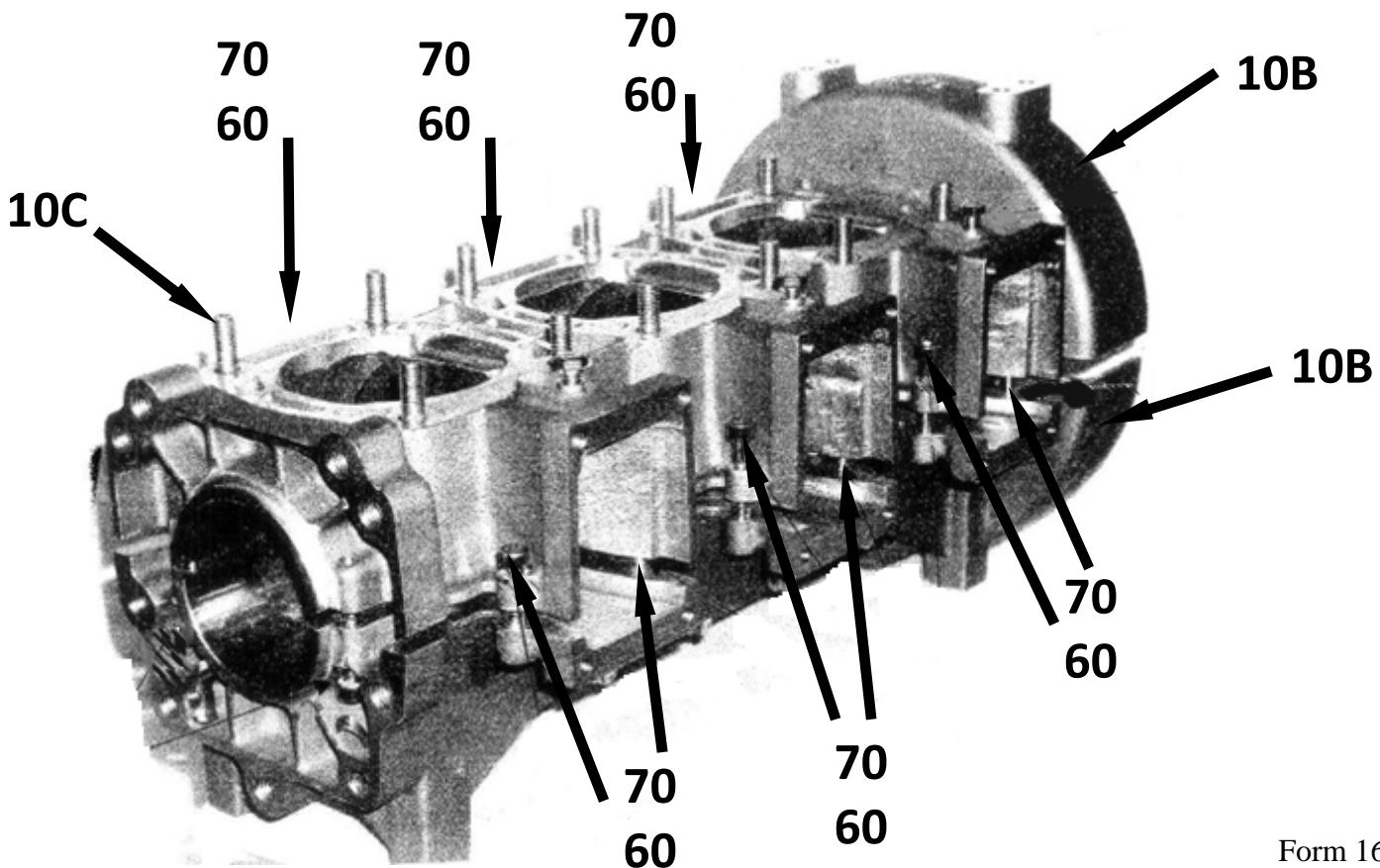


Fig. No.	Quantity.	Designation	Neoteric Part No
10	1	Crankcase, complete	<b>7160</b>
10a	1	Crankcase, downside	<b>7161</b>
10b	1	Crankcase, upside	<b>7162</b>
10c	12	Stud screw	<b>7163</b>
20	3	Hexagon head screw	<b>6927</b>
30	3	Sealing ring, aluminum	<b>5629</b>
40	8	Hexagon head screw	<b>7165</b>
50	8	Washer	<b>7166</b>
60	11	Serrated lock washer	<b>6902</b>
70	5	Cylinder screw	<b>6901</b>
80	2	Cylinder screw	<b>2289</b>
90	4	Cylinder screw	<b>6911</b>



## Crankshaft 3701

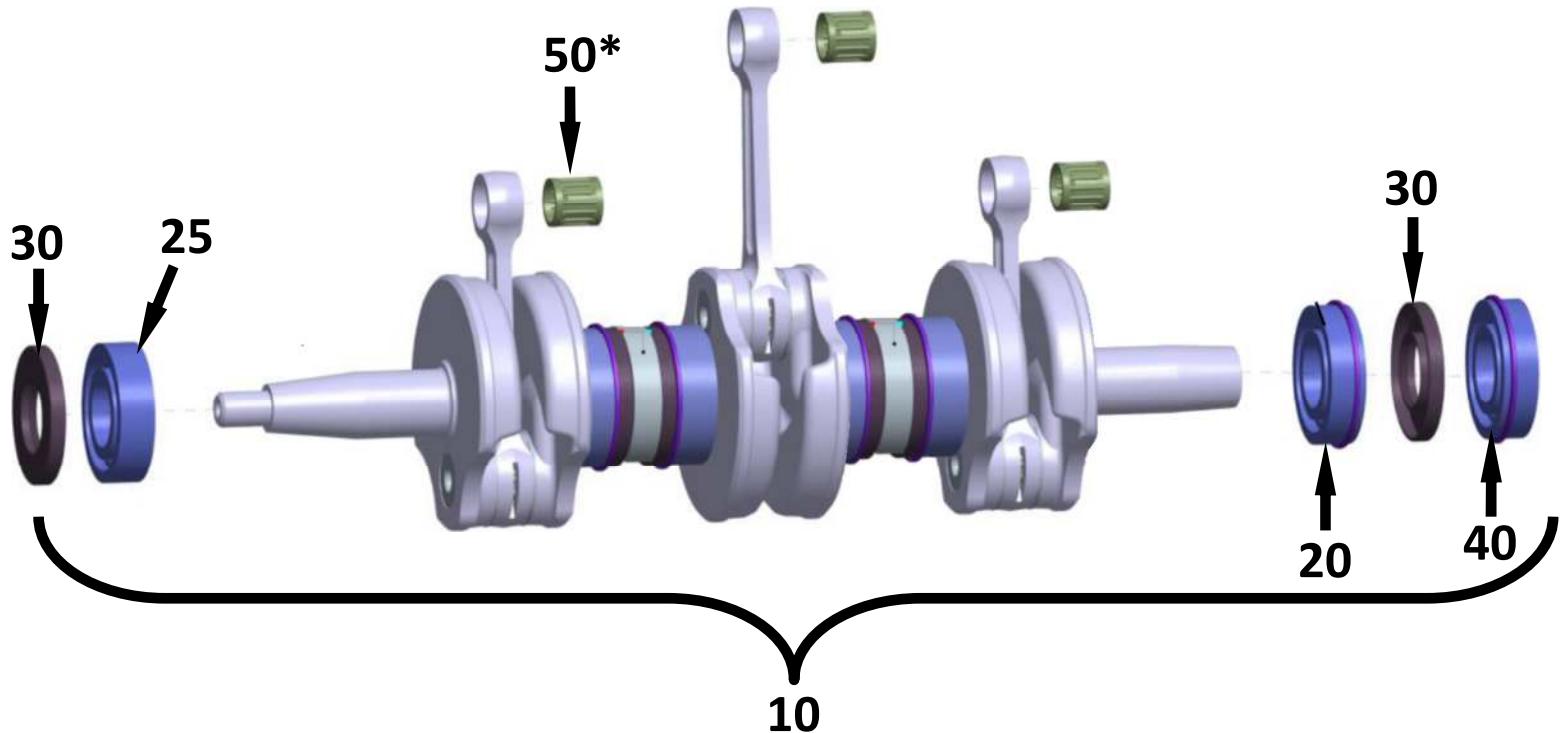
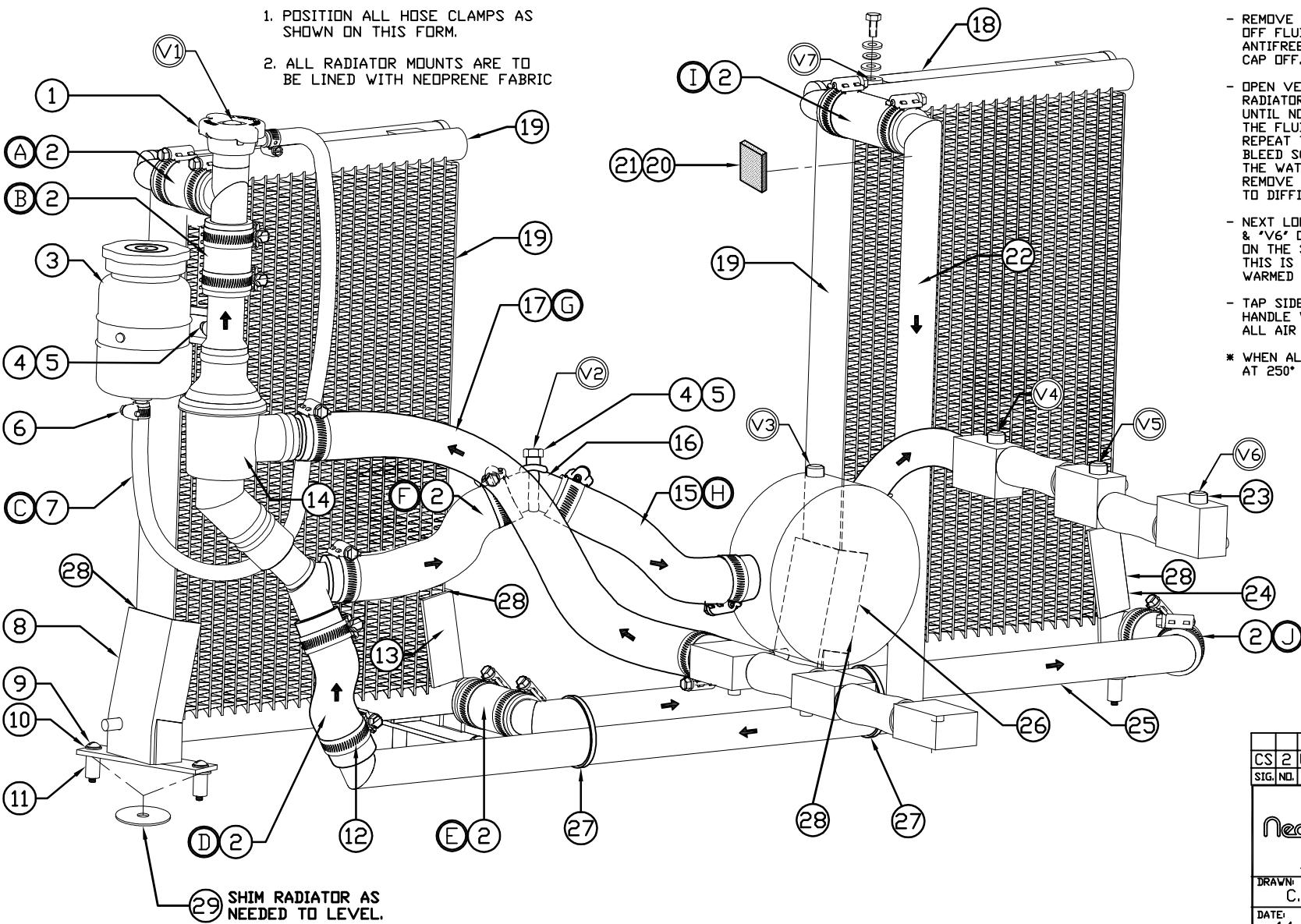


Fig. No.	Qty.	Description	Neoteric Part #	Remark / Notes
10	1	Crankshaft	7167	Includes items 20 - 40
20	1	Deep groove ball bearing	7168	
25	1	Deep groove ball bearing	7169	
30	2	Shaft sealing ring	5453	
40	1	Deep groove ball bearing	7170	
50	3	Needle Bearing, Blue dot (#1)	7909	* Connecting Rods are Color-Coded with a Paint Dot on the Piston end.
		Needle Bearing, Yellow dot (#2)	6082	Engines built from 2010 onward also include a Number Code next to the Paint Dot. The coding corresponds to the correct Needle bearing size. (Approx 0.0003" [0.008mm] graduation between each size)
		Needle Bearing, Red dot (#3)	6083	
		Needle Bearing, White dot (#4)	5464	Blue (#1) is the smallest and Green (#5) is the largest. Connecting rods with a Red (#3) dot are most common.
		Needle Bearing, Green dot (#5)	7910	If the paint dot is missing and no number code can be found, all bearings must be tried for the best fit.

REF. PART #		DESCRIPTION		REF. PART #		DESCRIPTION		REF. PART #		DESCRIPTION	
1	5941	HIRTH RADIATOR CAP, MODIFIED		12	5961	HOSE CLAMP, SS		23	2469	CAP SCREW, SOCKET HD SS	
2	5954	1.00 ID RADIATOR HOSE		13	5964	HIRTH RADIATOR INSIDE MOUNT, PORT COATED		24	5965	HIRTH RADIATOR OUTSIDE MOUNT, STAR. COATED	
3	5948	HIRTH RADIATOR OVERFLOW BOTTLE		14	5802	HIRTH RADIATOR THERMOSTAT, MODIFIED		25	5980	HIRTH RADIATOR, LOWER PIPE	
4	2451	HEX NUT, SS		15	5953	RADIATOR HOSE		26	5976	HIRTH RADIATOR INSIDE MOUNT, STAR. COATED	
5	2230	BOLT, HEX HD SS		16	6098	HIRTH RADIATOR LINE BLEED TUBE		27	2371	NYLON WIRE TIE, BLACK	
6	2203	SCREW/BAND HOSE CLAMP, SS		17	6576	1.00 ID RADIATOR HOSE, 90 DEG BEND		28	3108	NEOPRENE FABRIC, BLACK	
7	2697	PVC HOSE, CLEAR		18	6412	STARBOARD RADIATOR		29	2516	SHIM WASHER, SS	
8	5975	HIRTH RADIATOR OUTSIDE MOUNT, PORT COATED		19	6411	PORT RADIATOR					
9	2266	MACH SCREW, ROUND HD SS		20	2957	NEOPRENE SHEET, BLACK					
10	2362	WASHER, SS		21	3185	NEOPRENE AHDESIVE					
11	2552	WELL NUT		22	5979	HIRTH RADIATOR, UPPER PIPE					

NOTE:

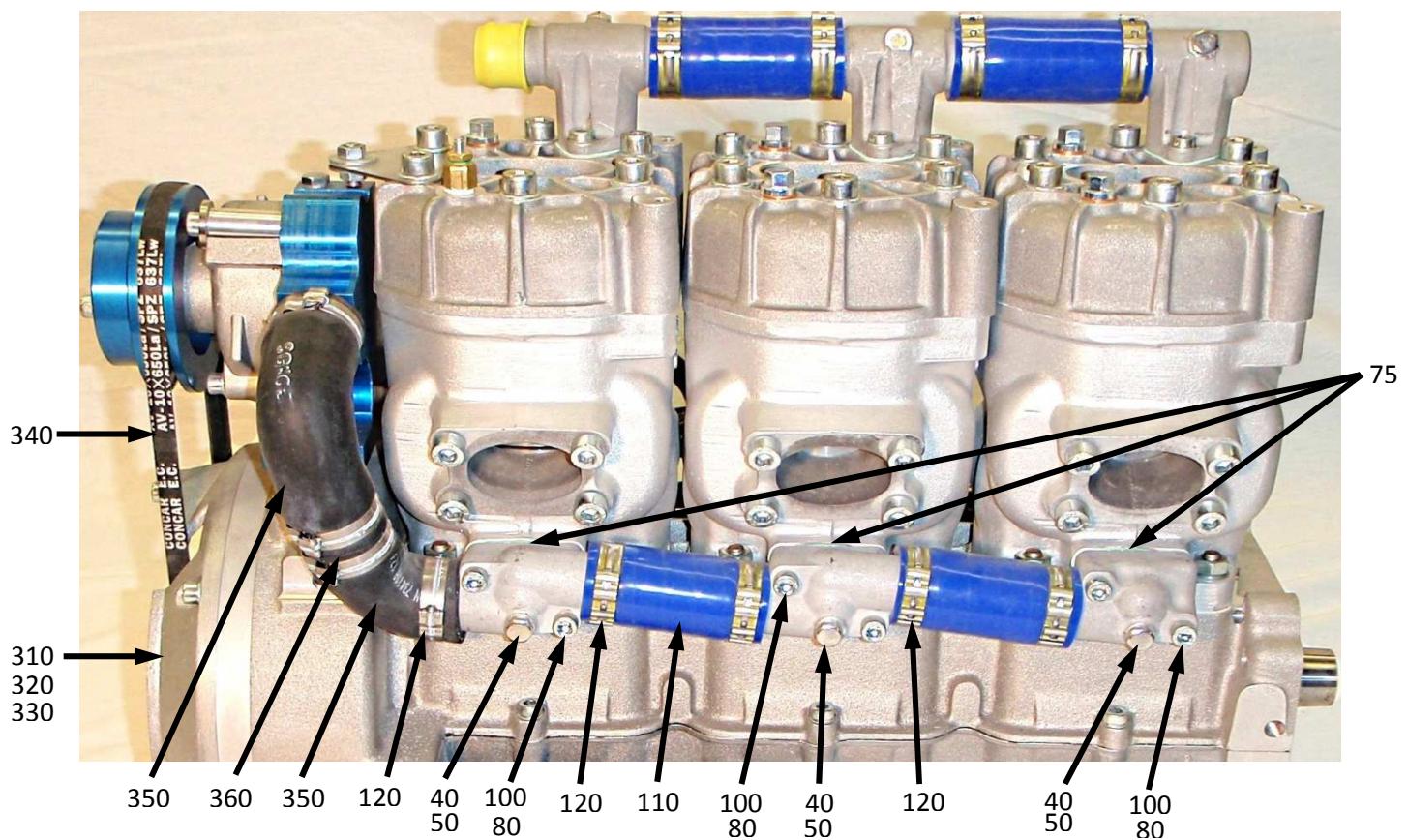
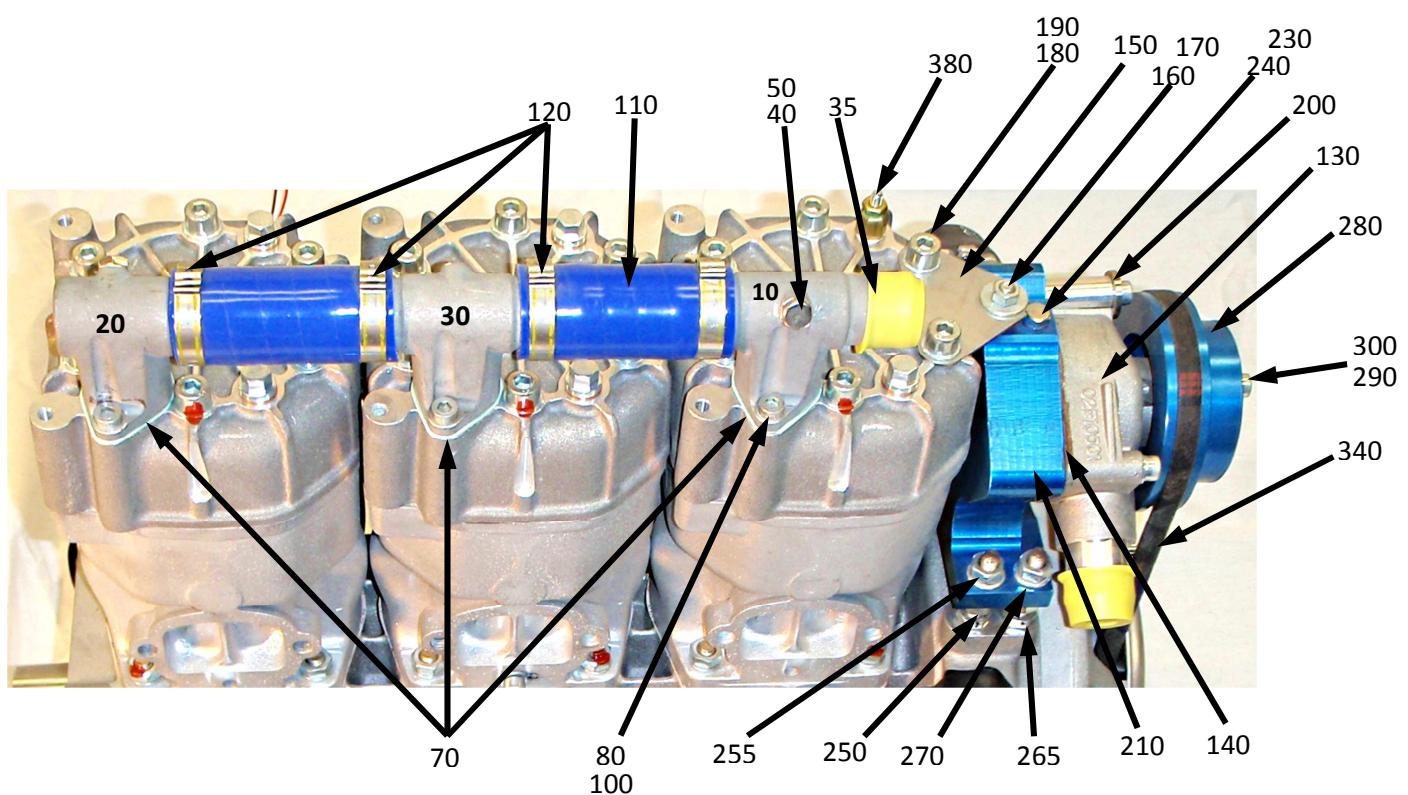
1. POSITION ALL HOSE CLAMPS AS SHOWN ON THIS FORM.
2. ALL RADIATOR MOUNTS ARE TO BE LINED WITH NEOPRENE FABRIC



BLEEDING THE COOLING SYSTEM

- REMOVE RADIATOR PRESSURE CAP AND TOP OFF FLUID. ITS BEST TO USE A 50/50 ANTIFREEZE (GLYCOL) / WATER MIX. LEAVE CAP OFF.
- OPEN VENT 'V7' ON TOP OF THE STARBOARD RADIATOR AND ALLOW FLUID TO FLOW OUT UNTIL NO AIR IS PRESENT. KEEP TOPPING OFF THE FLUID THROUGH RADIATOR PRESSURE CAP. REPEAT THIS PROCESS FOR EACH OF THE BLEED SCREWS. \*\*THE BLEED SCREW IN THE WATER PUMP IS TRICKY, TRY NOT TO REMOVE THIS SCREW ALL THE WAY DUE TO DIFFICULTIES REINSTALLING.
- NEXT LOOSEN AND BLEED SCREWS 'V4', 'V5', & 'V6' ONE AT A TIME. THESE ARE LOCATED ON THE STARBOARD SIDE OF ENGINE. WHEN THIS IS DONE RUN THE ENGINE UNTIL IT IS WARMED UP THEN REPEAT THE ABOVE.
- TAP SIDE OF THERMOSTAT WITH WOODEN HANDLE WHILE CAP 'V1' IS REMOVED UNTIL ALL AIR BUBBLES DISAPPEAR.
- \* WHEN ALL AIR IS REMOVED, CHT SHOULD RUN AT 250° F MAX.

CS 2	UPDATED TO STD II, REMOVED DESCRIPTIONS	3 JUN 2014
SIG. NO.	REVISION	DATE
 1649 TIPPECANOE STREET TERRE HAUTE, INDIANA U.S.A. 47807-2394 TELEPHONE:(812) 234-3120 FAX:(812) 234-3217		
DRAWN:	NAME: C. STEIMEL	
DATE:	NUMBER: 100HP HIRTH COOLING SYSTEM	
14 JUL, 2009	REV. 2	



### Cooling system 3701

Fig. No.	Quantity	Designation	Neoteric Part No	
10	2	Inlet intermediate piece	<b>7171</b>	
20	2	Inlet end piece	<b>7172</b>	
30	2	Inlet intermediate piece	<b>7173</b>	
35	2	Plug	<b>7174</b>	
40	6	Hexagon head screw	<b>6927</b>	Loctite 242
50	6	Sealing ring, aluminum	<b>5629</b>	
65	6	Cylinder screw	<b>2292</b>	
70	3	Sealing joint Gasket	<b>6095</b>	
75	3	Sealing joint Gasket	<b>6095</b>	
80	12	Cylinder screw	<b>6911</b>	Loctite 242
100	18	Locking washer	<b>6902</b>	
110	4	Coolant hose	<b>7176</b>	
120	12	Hose clamp	<b>6802</b>	
	1	Water pump and housing	<b>7178</b>	Contains Pos. 130-240
130	1	Water pump	<b>7179</b>	
140	1	Sealing joint f. water pump	<b>7180</b>	
150	1	Holder for water pump clamping	<b>7181</b>	
160	1	Cylinder screw	<b>7182</b>	Loctite 242
170	1	Washer	<b>6936</b>	
180	3	Cylinder screw	<b>7183</b>	Loctite 242
190	2	Washer	<b>6916</b>	
200	1	Washer	<b>5996</b>	
210	1	Casing for water pump	<b>7184</b>	
230	1	Hexagon head screw	<b>6927</b>	Loctite 242
240	1	Sealing ring, aluminum	<b>5629</b>	
250	4	Stay bolt	<b>7185</b>	Loctite 242
255	4	Hexagon head nut	<b>7186</b>	Loctite 242
265	8	Hexagon head nut	<b>6233</b>	
270	12	Washer	<b>6162</b>	Loctite 242
280	1	Water Pump Pulley	<b>6645</b>	
280	1	Water Pump Pulley SS	<b>7613</b>	
290	3	Cylinder screw	<b>7189</b>	
300	3	Washer	<b>6916</b>	
310	1	Driver Pulley	<b>6646</b>	
310	1	Driver Pulley SS	<b>7612</b>	
320	4	Cylinder screw	<b>7189</b>	
330	4	Locking washer	<b>6902</b>	
340	1	V-Belt	<b>6104</b>	
350	2	Coolant hose 90°	<b>7190</b>	
360	1	Connection tube	<b>7191</b>	
380	1	Water Temp Sender	<b>6277</b>	

## Hirth 100HP Ignition System

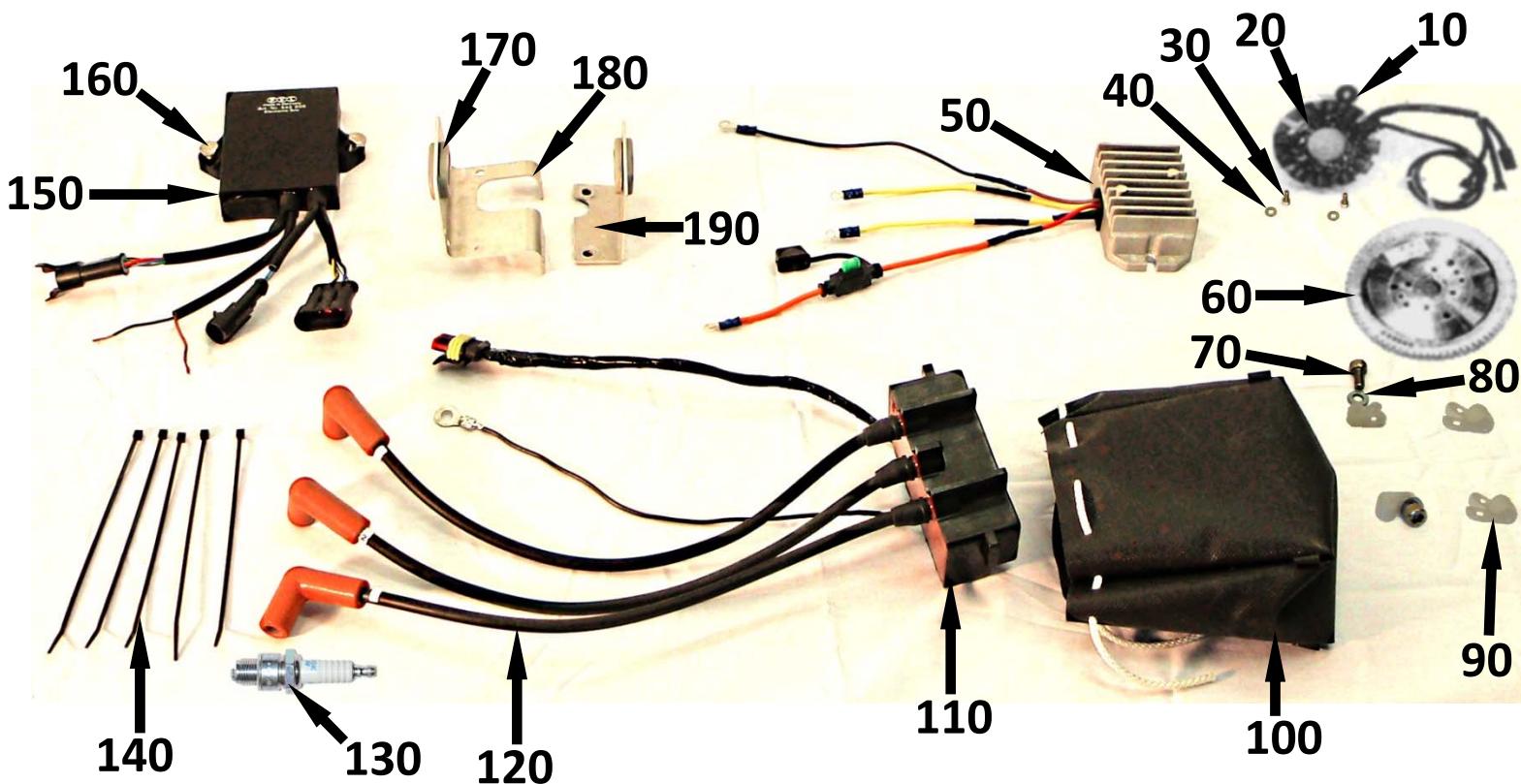


Fig. No.	Qty	Description	Neoteric Part #	Remark / Notes
10	1	Grommet	7194	Not to Scale
20	1	Armature plate, complete	6564	Not to Scale
30	2	Cylinder screw	7182	Torque = 4 - 4.5 Nm (3 - 3.3 ft-lb) & Loctite 243
40	2	Washer	6936	
50	1	Voltage Regulator	5338	
60	1	Magnet flywheel, complete	7195	Not to Scale
70	4	Cylinder Screw	6901	
80	4	Lock Washer	6902	
90	4	Plastic P-Clip	2192	
100	1	Coil Bag	6705	
110	1	100HP Ignition Coil	7053	
120	1	Spark Plug Lead Set	7056	Must be purchased as a set (contains black boots; not shown)
120	-	Spark Plug Lead, Old Style	7343*	*No longer available; Must purchase set 7056 (contains red boots as shown above)
130	3	Spark Plug	5606	
140	1	Nylon Wire Tie	2372	
150	1	100HP Modified CDI	7814	
160	2	Hex Bolt	2230	
170	2	Mount Plate Grommet	6806	No Longer Used
180	2	Outer Coil Mount Plate	5883	No Longer Used
190	3	Inner Coil Mount Plate	7197	No Longer Used

# 100HP Carbureted Engine

Offered Jan 2016



Fig No.	Quantity	Description	Neoteric Part No.	Notes
<b>1</b>	1	100HP Carbureted Engine	<b>9219</b>	Offered June 2016
<b>2</b>	3	Carburetor	<b>5355</b>	
<b>3</b>	1	100HP Carb Fuel System	<b>7211</b>	Only for 100HP Carb.

BILL OF MATERIAL			
REF.	PART #	DESCRIPTION	QTY.
1	2192	NYLON P-CLIP	1
2	2371	NYLON WIRE TIE, BLACK	2
3	1302	FUEL FILTER	1
4	3000	FUEL HOSE, BLACK	41.25
5	9149	SINGLE FEED FUEL PUMP	3
6	2203	WORM-GEAR HOSE CLAMP, SS	22
7	2391	HEX BOLT, SS	3
8	2451	HEX NUT, SS	3
9	3188	THREAD LOCK ADHESIVE, RED	2
10	3397	ALUMINUM PLATE	10.50
11	5427	FUEL TEE FITTING	2



(3)

(11)

SIG. NO.	REVISION	DATE
<b>Neoteric Hovercraft Inc.</b>		
1649 TIPPECANDA STREET TERRE HAUTE, INDIANA, U.S.A. 47807-2394 TELEPHONE (812) 234-1200 FAX (812) 234-3217		
DRAWN: PAGE: 1 OF 1	NAME: CJ POEHLIN	WEIGHT: 100HP CARBURETED FUEL SYSTEM
DATE: 10 JUNE, 2016	NUMBER: 16674	REV. 2

USED ON:  
SCALE:  
PAGE:  
1 OF 1

CHECKED:  
WEIGHT:

# 100HP Carbureted Engine Saltwater Package

Offered Jan 2016

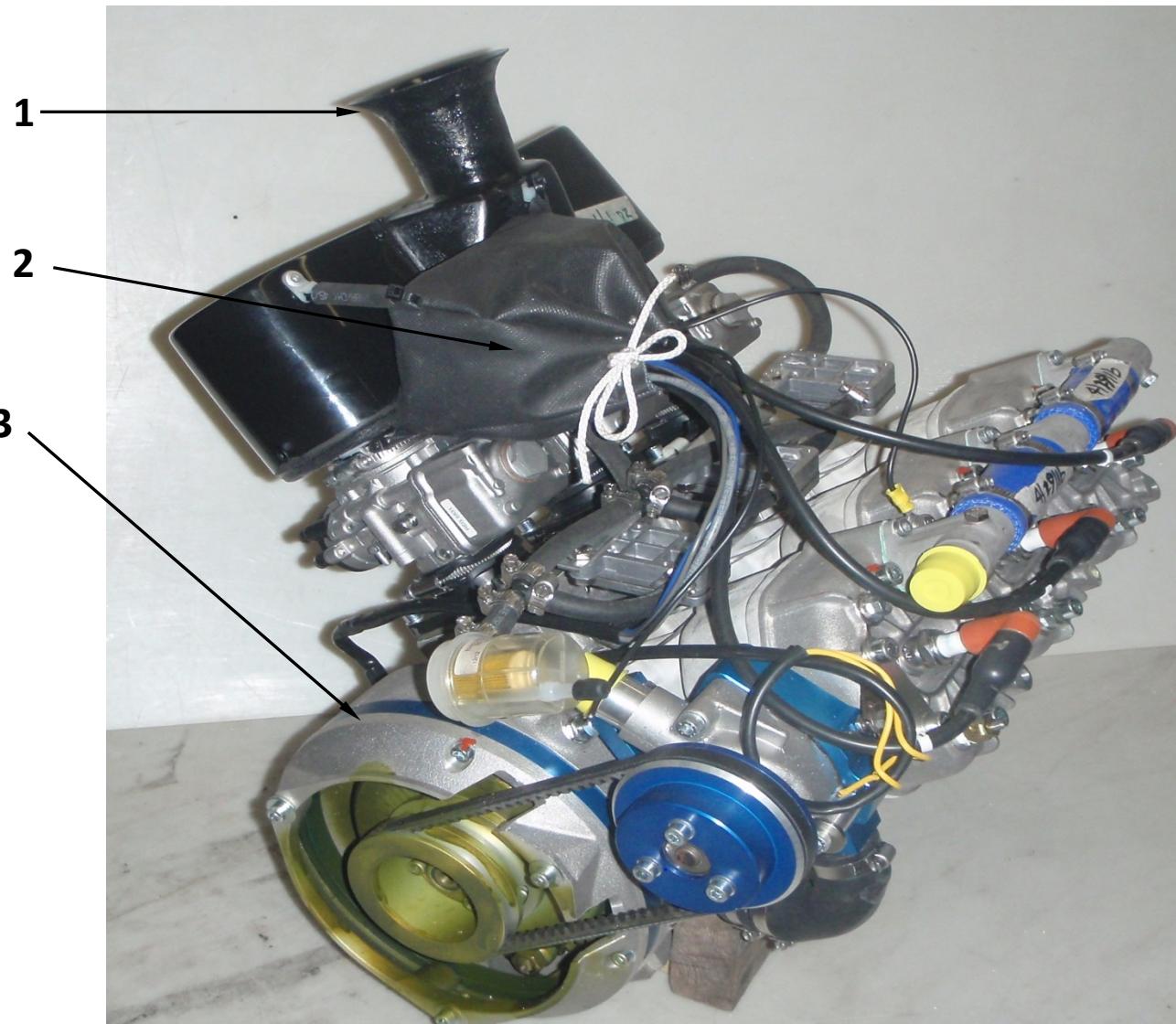


Fig No.	Quantity	Description	Neoteric Part No.	Notes
1	1	HT6 Saltwater Air Intake Filter Box Assembly	6703	
2	1	100HP Coil & CDI Assembly	9157	
3	1	100HP Carbureted Engine Modified	9219	Offered June 2016

### 3-Cylinder Fuel Injection Electrical System

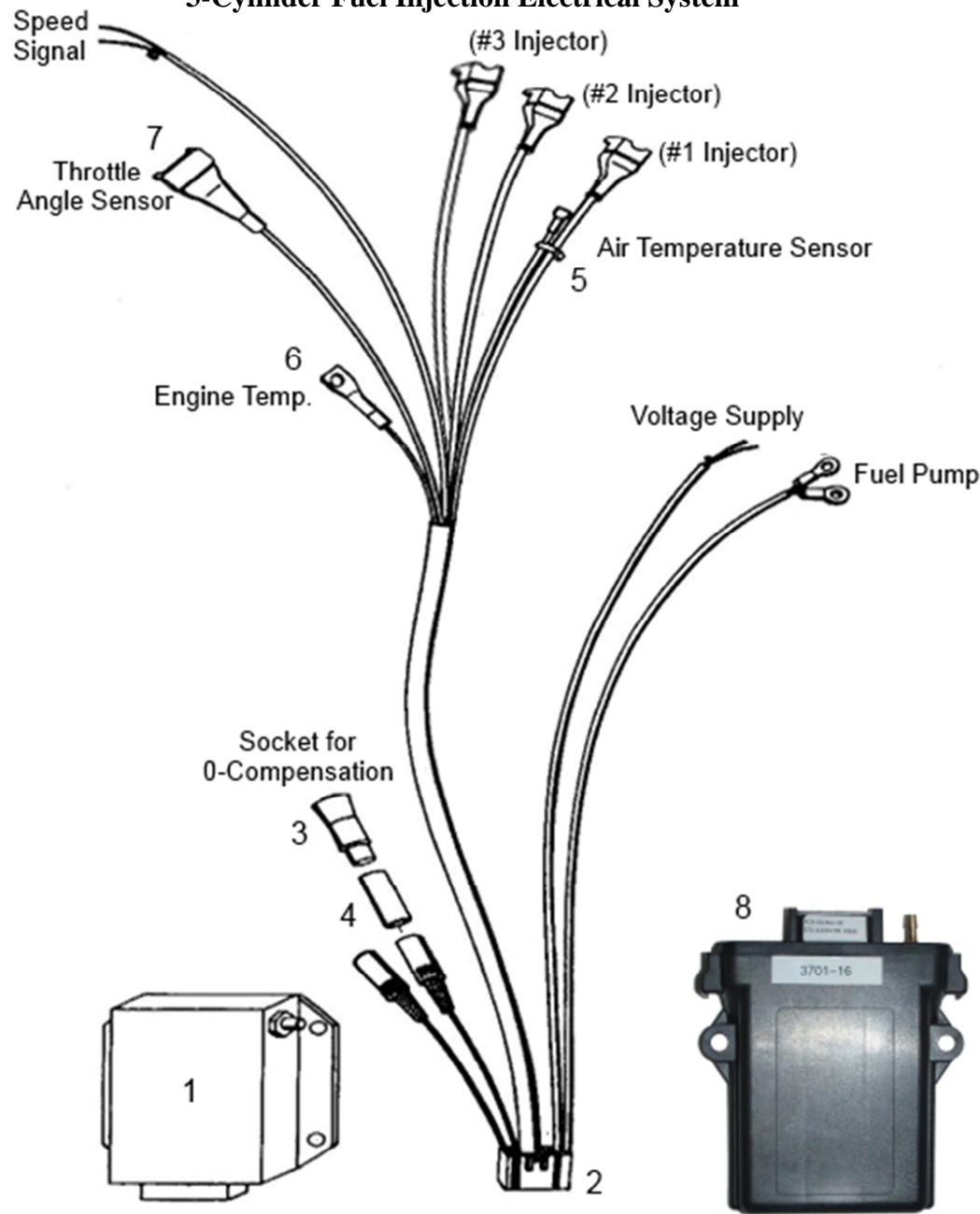


Fig.No.	Qty	Description	Neoteric Part #	Note
1	1	Red Computer Box	<b>5616</b>	Used on Early HoverTrek Models
2	1	Cable harness, Red	<b>6453</b>	Harness for Red Computer Box
2	1	Cable harness, Black	<b>6210</b>	Harness for Black Computer Box
3	1	0-compensation plug	<b>7205</b>	Used when optional manual enrichment device not used -
4	1	Shrink tube	<b>3192</b>	Place on plug with 3 wires (cable colors red, blue, black) 60 denotes length in mm
5	1	Air Temp Sensor	<b>7525</b>	
6	1	Engine Temp Sensor	<b>7526</b>	Attached to Cylinder Head
7	1	Throttle Pos. Sensor	<b>7567</b>	
8	1	Black Computer Box	<b>6383</b>	Used on Current HoverTrek Models

## Fuel injection horizontal 3701



Fig. No.	Quantity	Description	Neoteric Part #	Remark note
1	3	Reed valve assembly	7203	
2	3	Gasket	5463	
3	12	Cylinder screw	2289	
4	12	Washer	6916	
5	3	Rubber carburetor flange	6568	
6	3	Rubber socket	7208	
7	1	Ground cable	6454	
8	1	Cable clip	7206	
9	1	Throttle manifold	6182	

# Hirth Fuel System

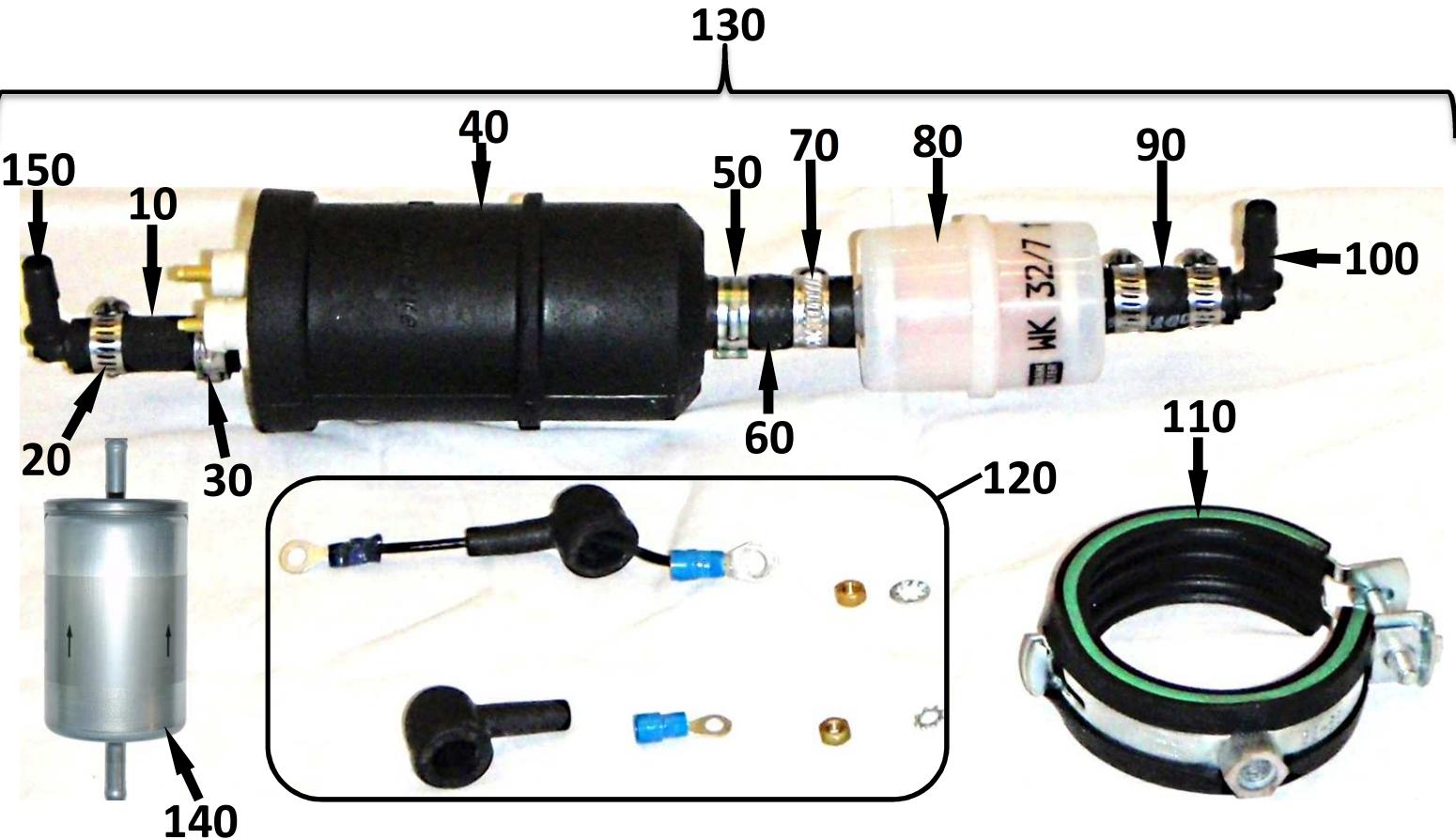


Fig. No.	Qty.	Description	Neoteric Part #	Remark / Notes
10	1	Fuel Line	6335	
20	3	Screw/Band Hose Clamp	2203	
30	1	Pinch Hose Clamp, Sm	5993	
40	1	Electric Fuel Pump	6414	
50	1	Pinch Hose Clamp, Lg	5986	
60	1	Fuel Line	6334	
70	1	Gapless Hose Clamp	6943	
80	1	Fuel Filter	5372	
90	3"	Fuel Line	3193	
100	1	Large Elbow	2674	
110	1	Fuel Pump Holder	6336	
120	1	Fuel Pump Connection Kit	6628	
130	-	Fuel Pump Assy	6666	Includes Fig No. 10 - 120
140	1	Micro Fuel Filter	5373	
150	1	Small Elbow	2438	

## Starter / Flywheel Cover

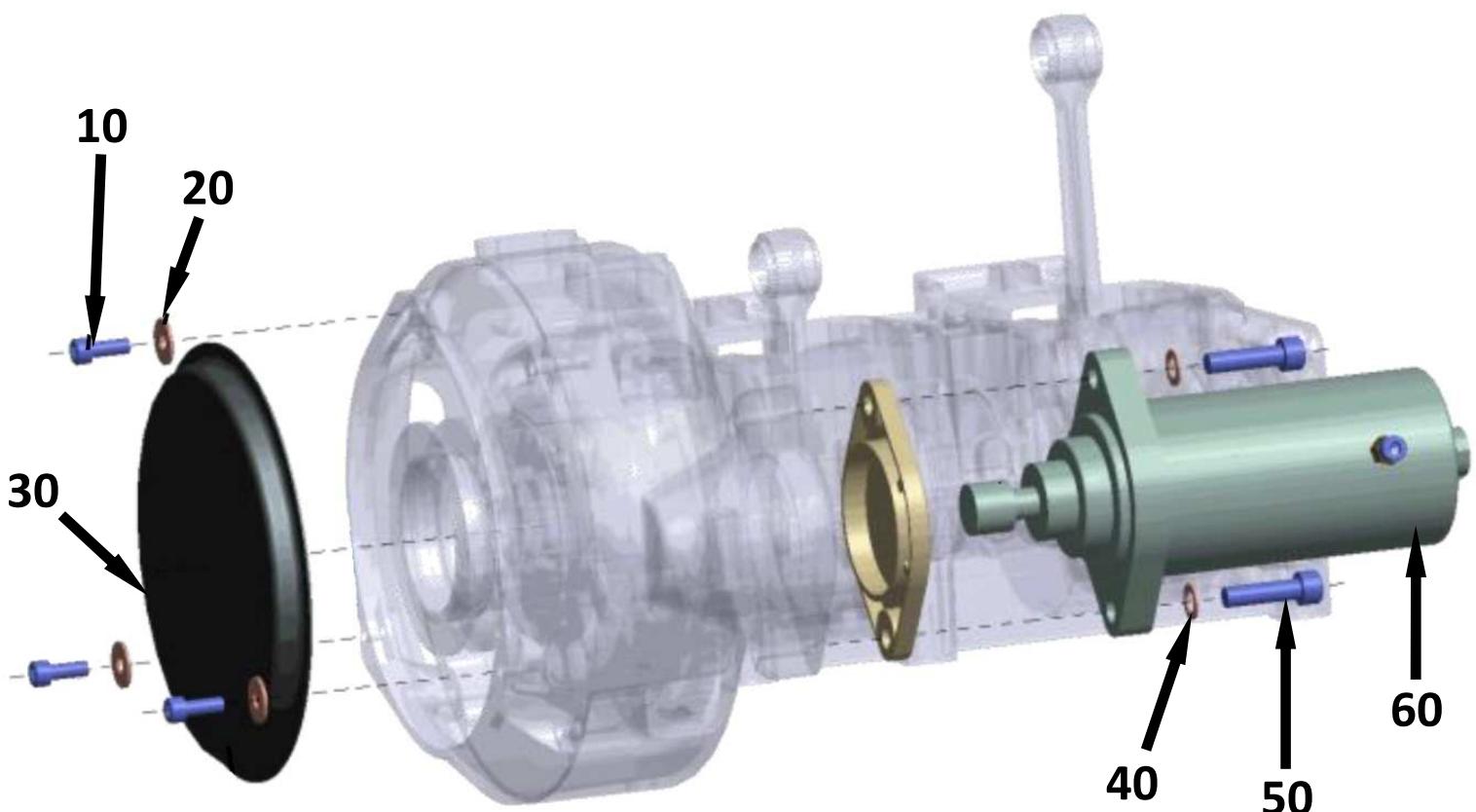
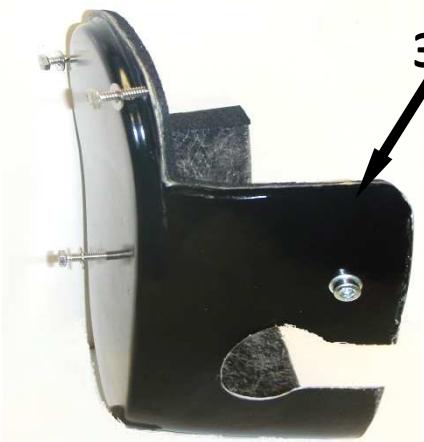
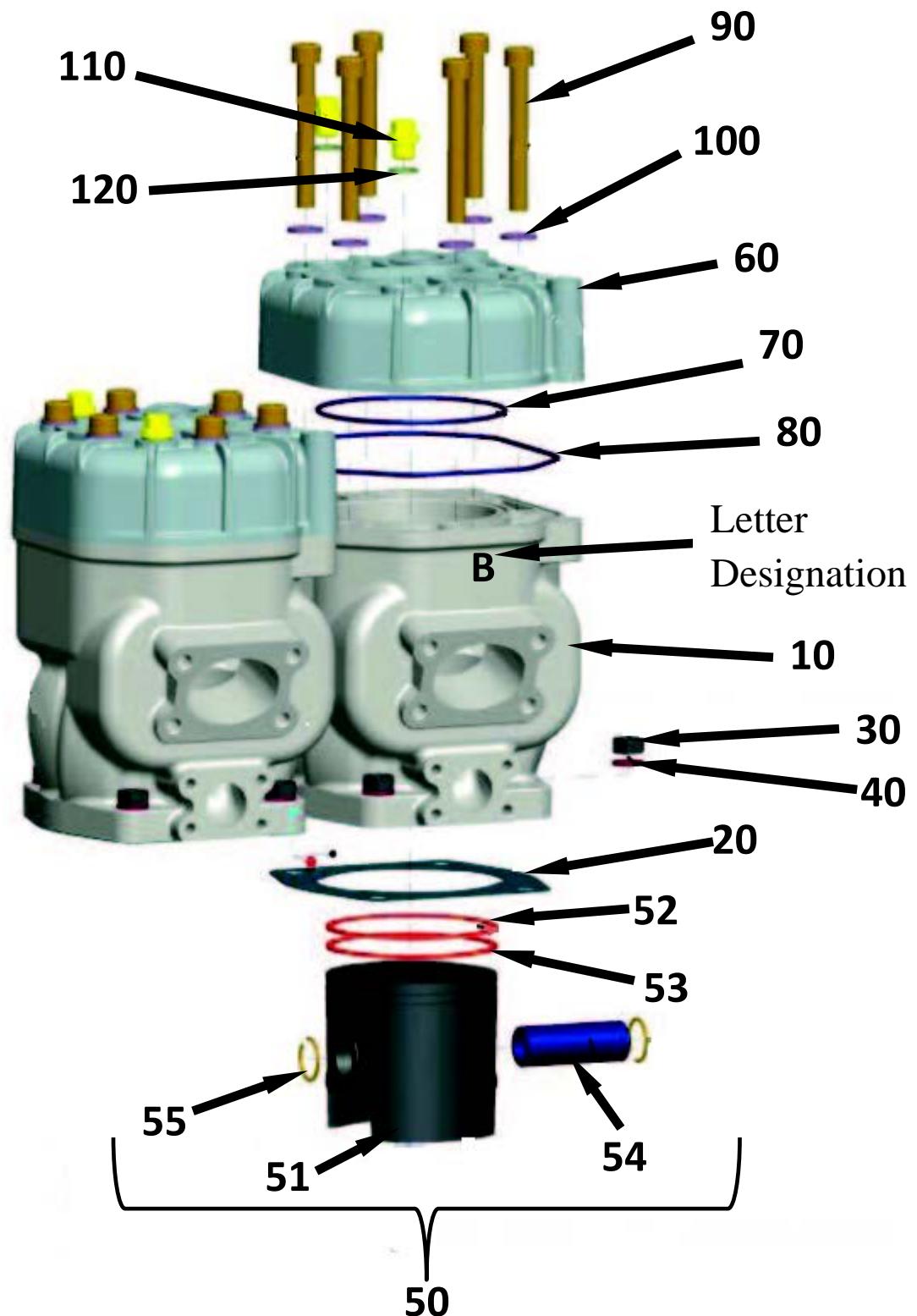


Fig. No.	Qty.	Description	Neoteric Part #	Remark / Notes
10	3	Cylinder Screw	9074	
20	3	Flat Washer	5996	
30	1	Flywheel Housing Cover Plate	9075	
35	1	Fiberglass Water Pump Cover	9073	Replaced housing cover plate, 2015
40	2	Serrated Lock Washer	5995	
50	2	Cylinder Screw	2348	
60	1	Electric Starter (OEM)	6982	Shown Above
60	-	Electric Starter (Replacement)	7563	Not Shown

# Hirth 100HP Cylinder Parts Drawing

Note: 3rd Cylinder  
Not Shown in  
Drawing

Cyl. Marked with  
Letters A, B, or C.  
Piston Marked with  
corresponding Letter.  
Note proper Cyl. Letter  
when ordering.



## Hirth 100HP Cylinder Parts List

Fig. No.	Qty	Description	Neoteric Part #	Remark note
10	3	Cylinder	<b>6090</b>	Cylinders Marked w/ Letter A, B, or C. If no Letter it is a B cyl. Ensure to check cylinder & order proper replacement. Cyl marked toward top, Letter is by itself.
20	3	Cylinder base gasket	<b>5455</b>	
30	12	Hexagon head nut	<b>6233</b>	
40	12	Washer	<b>6234</b>	
50	3	Piston set	<b>6379</b>	Contains Fig. 51-55
51	1	Piston	<b>7210</b>	Piston Marke w/ Letter corresponding to cylinder. A, B, or C. Marked on top of piston.
52	1	Piston ring	<b>5452</b>	
53	1	Piston ring	<b>5451</b>	
54	1	Piston pin	<b>5972</b>	
55	2	Circle clip	<b>6301</b>	
60	3	Cylinder head	<b>6089</b>	Specify Single Ignition
70	3	O-Ring	<b>5892</b>	
80	3	O-Ring	<b>5893</b>	
90	18	Cylinder screw	<b>6408</b>	
100	18	Washer	<b>6407</b>	
110	6	Bleed screw	<b>6409</b>	
120	6	Sealing ring	<b>6410</b>	

## Hirth HT6 Air Box Assembly

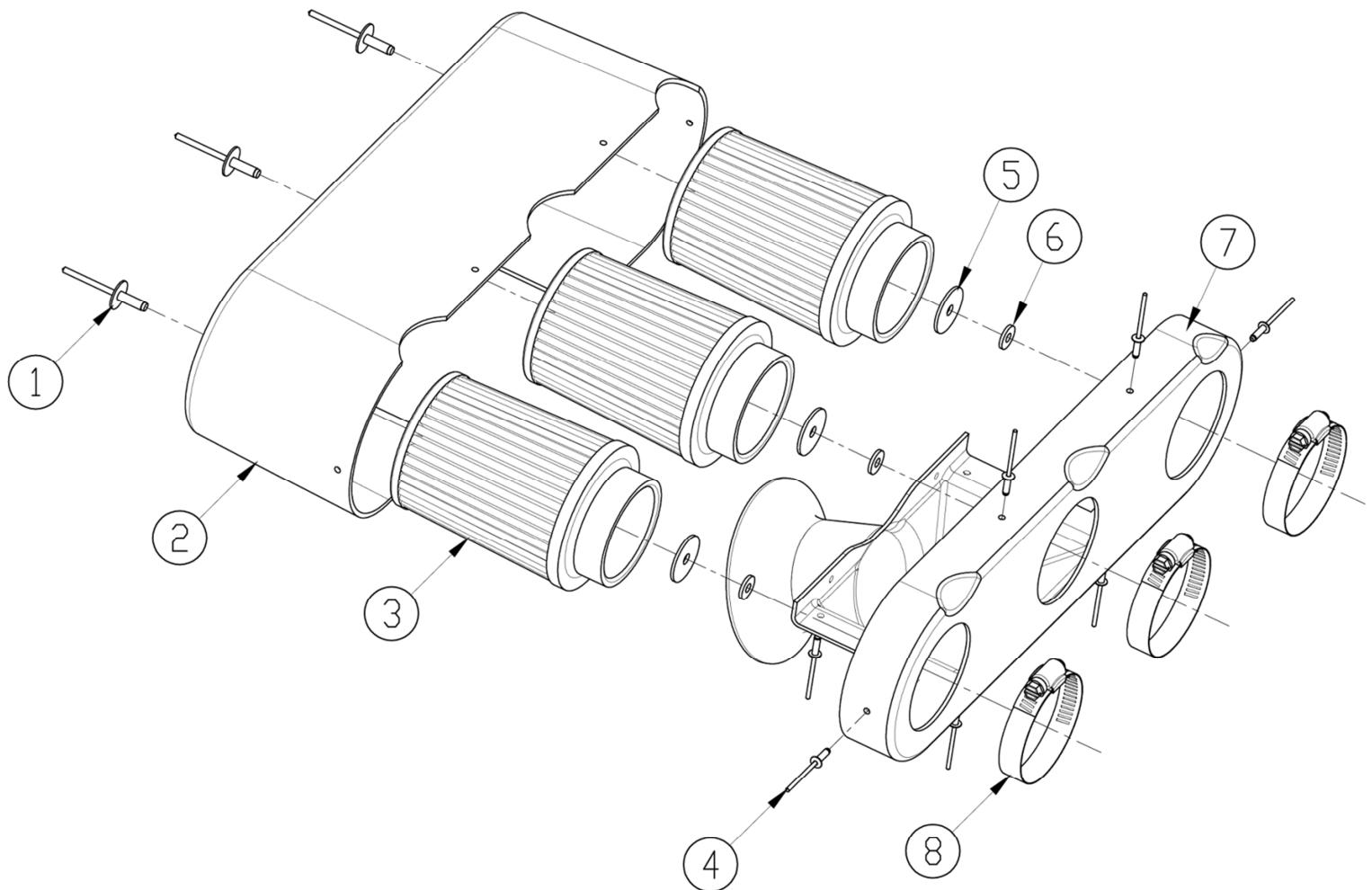


Fig. No.	Qty	Designation	Neoteric Part #	Remark
1	3	Rivet	<b>2156</b>	
2	1	Fiberglass Air Box	<b>5652</b>	
3	3	Air Filter	<b>6622</b>	Includes item 4
4	10	Rivet	<b>2058</b>	
5	3	Large Washer	<b>2516</b>	
6	3	Small Washer	<b>2352</b>	
7	1	Air Collector	<b>6913</b>	
8	3	Hose Clamp	<b>2201</b>	
-	-	Polyurethane Sealant	<b>2378</b>	Not Shown
-	-	Sealed Air Box Assembly	<b>6703</b>	Includes item 1 - 8 as shown above *Entered Service in Late 2010 - Current
-		Unsealed Air Box (Old Style)	<b>5653</b>	Includes item 1, 2, 3, 4, 6, 7 *Used on Craft Produce Before Late 2010

### Hirth 100HP Exhaust Header Parts

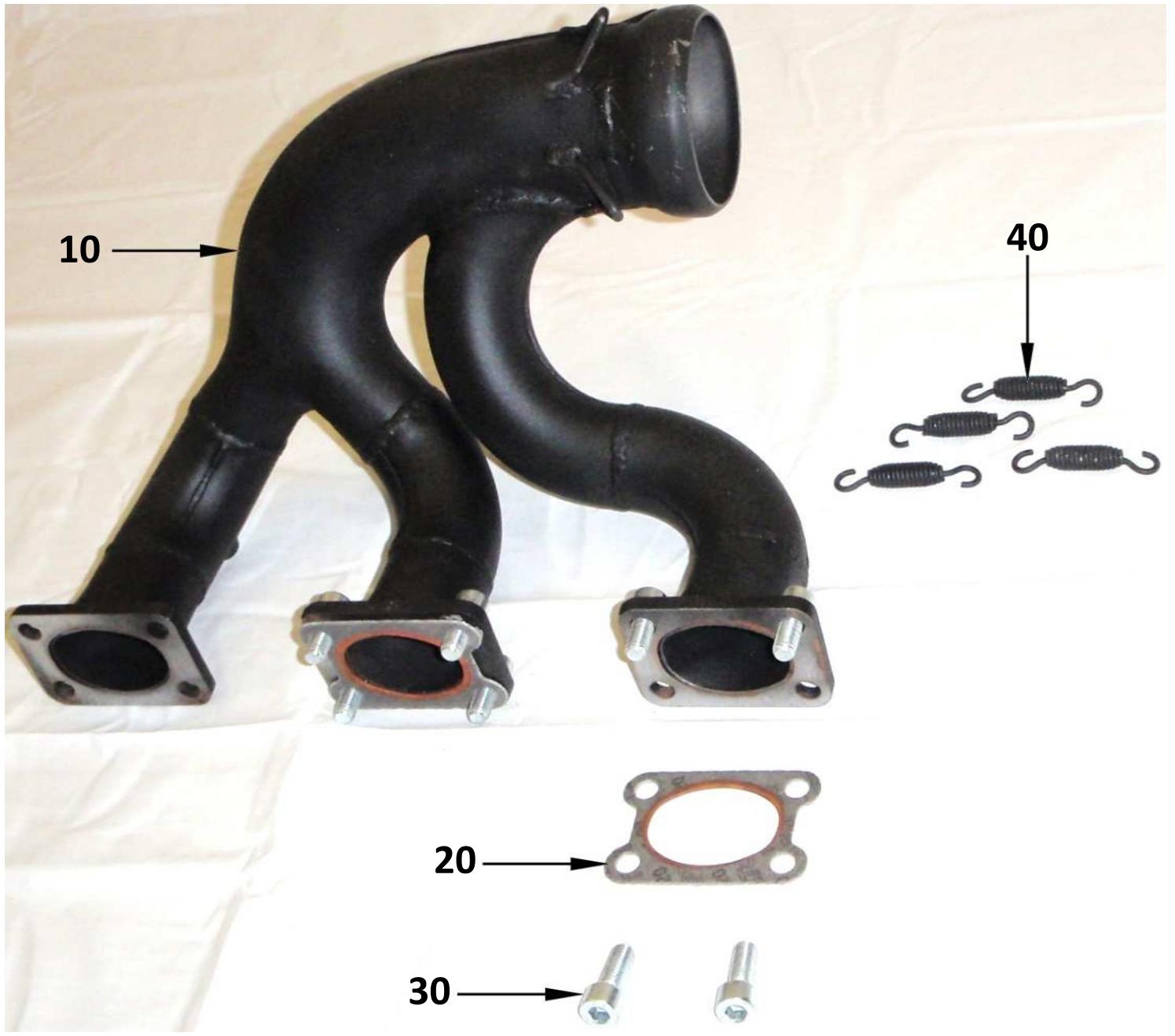
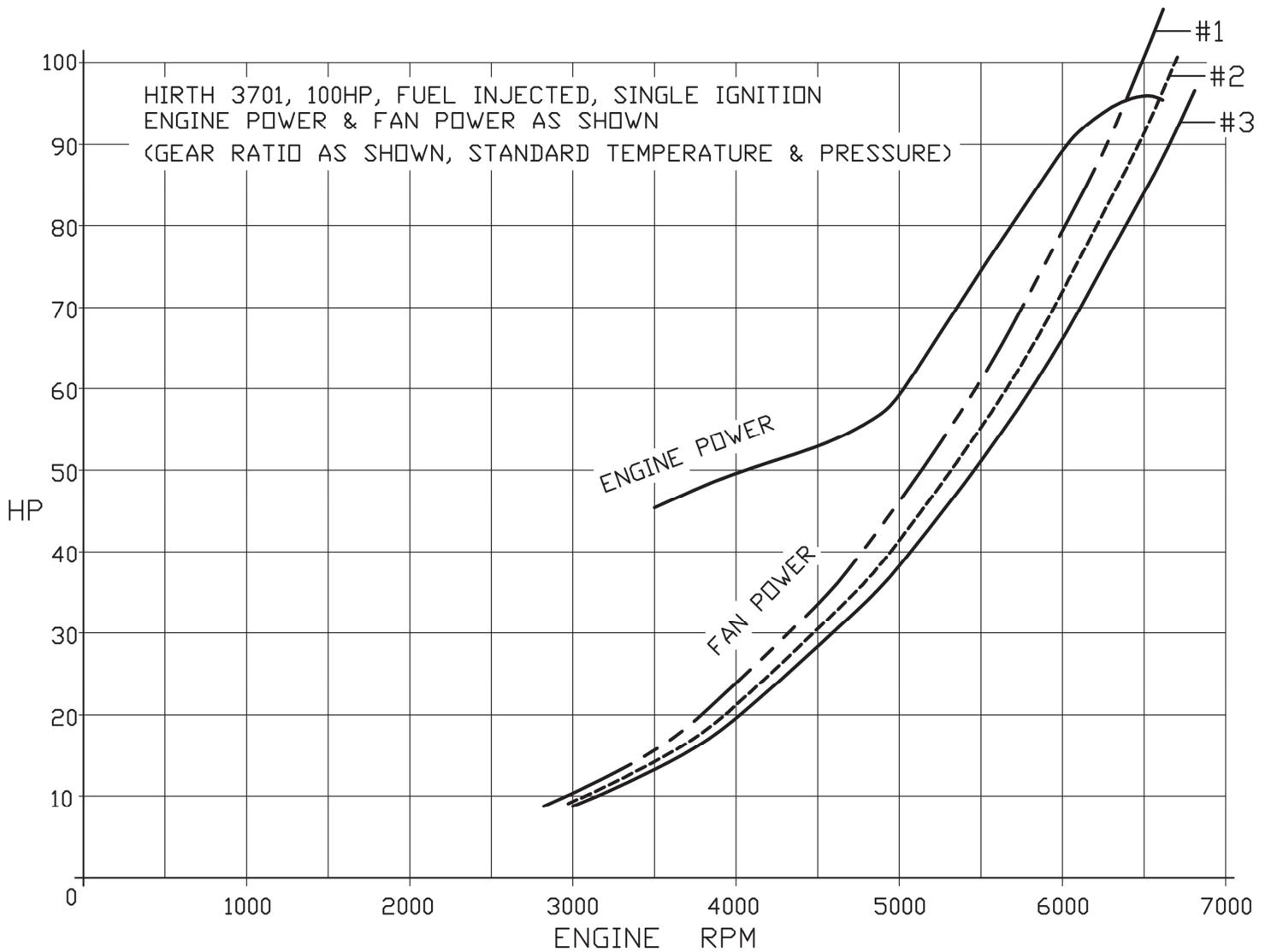


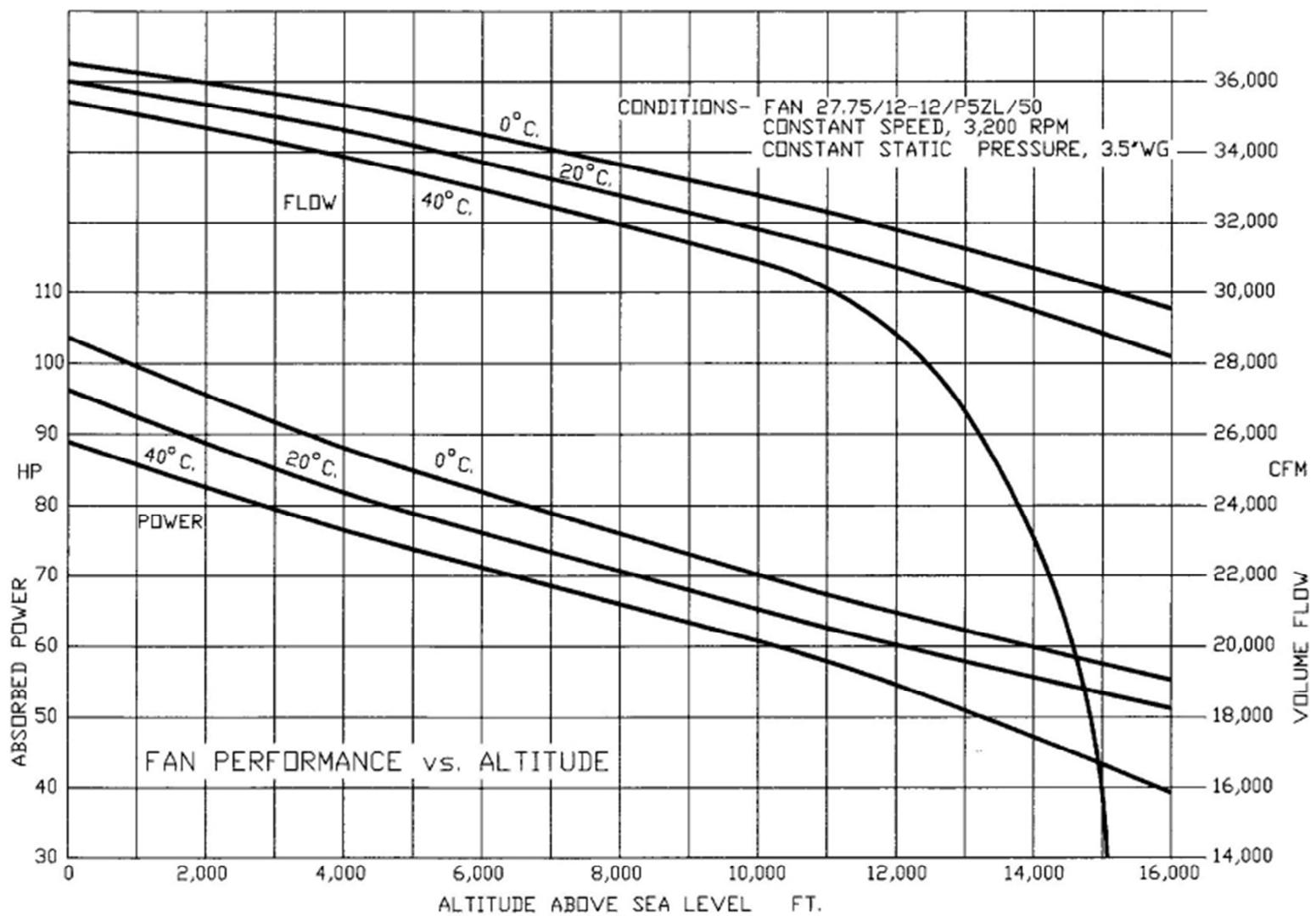
Fig. No.	Qty.	Designation	Neoteric Part No.	Remark note
10	1	Outlet Manifold	<b>5601</b>	
20	3	Outlet gasket	<b>5914</b>	
30	12	Cylinder Screw	<b>6932</b>	
40	4	Exhaust Spring	<b>5421</b>	



#1 FAN POWER: 28"/12-12/5Z/45°; Ratio 34/63

#2 FAN POWER 28"/12-12/5Z/6x45-6x50° (6X 45° & 6X 50° BLADES); Ratio 32/63

#3 FAN POWER: 28"/12-12/5Z/45°; Ratio 32/63



HIRTH ELECTRICAL COMPONENT RESISTANCE VALUES					
Volt Meter Terminal 1 (Red Lead)	Volt Meter Terminal 2 (Black Lead)	Value	Unit	Part	Notes
Yellow Wire	Yellow Wire	0.080	Ohm	5591 - 55/65Hp Stator Coil (Magneto)	
Yellow Wire	Mount Plate	450000000 - 550000000	Ohm		
Primary 1	Primary 2	0.351 - 0.429	Ohm	5682 - 55/65Hp Ignition Coil	See Figure "A"
Primary	Secondary	450000000 - 550000000	Ohm		
Secondary 1	Secondary 2	2699.1 - 3298.9	Ohm		
Black & Green Wire	Black & White Wire	0.396 - 0.484	Ohm	6097 - 100Hp Ignition Coil	See Figure "B"
Yellow & Brown Wire	Black & White Wire	0.405 - 0.495	Ohm		
Black & Blue Wire	Black & White Wire	0.387 - 0.473	Ohm		
Ground	Black & White Wire	450000000 - 550000000	Ohm		
Secondary 1	Ground	1385.1 - 1747.9	Ohm		
Secondary 2	Ground	1386 - 1694	Ohm		
Secondary 3	Ground	1386 - 1694	Ohm		
Yellow Wire	Yellow Wire	0.100	Ohm	6564 - 100Hp Stator Coil (Magneto)	
Black	Red	2.950	Volts (DC)	5338 - Hirth Voltage Regulator	* Must have a multi-meter with a diode test to diagnose voltage regulator
Red	Black	> 5.000	Volts (DC)		
Yellow	Yellow	2.300	Volts (DC)		

