VACUUM PUMP COOLING KIT INSTALLATION INSTRUCTIONS
for
KIT NO. RA40A

(Fits Airborne Model 400-series Dry Air Pumps)

IMPORTANT NOTE: COOLING SHROUD MUST BE AT LEAST 72 DEGREES FAHRENHEIT BEFORE ATTEMPTING TO INSTALL.

To install Vacuum Pump Cooling Kit No. RA40A, proceed according to the following instructions. Refer to the Drawing List (page 2) to identify the appropriate flange installation drawing for your model aircraft. For a view of an installed cooling shroud, ducting and flange, refer to Drawing 1. The STC and Eligibility Listing is found on page 2.

COOLING SHROUD INSTALLATION:

To mount the cooling shroud on the vacuum pump, the shroud must be pushed on over the fins on the pump. If unable to do so, heat the shroud under hot tap water or allow it to set in hot water for five minutes. (Caution: Water should not be hot enough to burn yourself.) The shroud is made so the cooling exit is not centered with the cooling inlet. Turn over and/or rotate the shroud on the vacuum pump to best compromise the cooling inlet and outlet with other objects that may interfere with them near and around the vacuum pump. If a fitting or fittings are removed from the pump during installation, and lubrication is needed, use only a spray silicone on the threads, shake off the excess and let it dry before installing the fitting. **DO NOT** use oil, grease or tape on the threads.

COOLING DUCT INSTALLATION:

Install the cooling duct on the shroud inlet using sealant and a nylon cable tie, as per instructions on Drawing 1. Route the cooling duct to the aft side of the rear engine baffle, avoiding sharp bends, sharp objects and moving parts. **DO NOT** cut off excess duct at this time.

INSTALLATION OF FLANGE FITTING: (Refer to Flange Installation Drawings.)

1. Make a 1 3/8-inch hole in the baffle, maintaining a l-inch edge distance minimum, or as per drawing.
2. Drill four (4) #40 holes and use washers under rivets on flange side. Install the flange through the baffle from the front. Use sealant between flange and baffle. Install the flanged fitting using four (4) AN470AD-3 rivets or drill four (4) #28 holes and use four (4) AN526-632 screws and AN365-632 nuts and AN960-6 washers.
3. Cut the cooling duct to length--avoid making it too long or too short for best routing. Try to avoid making over 90 degree bends and sharp bends.
4. Install the cooling duct on the flanged fitting using sealant and a nylon cable tie (see Drawing 1). Support or tie the cooling duct every 12 inches.

SEALING REQUIREMENTS:

1. To compensate for the 1.07-inch hole in the rear engine baffle, seal holes in the engine baffling at forward and rear corners, the space between the rear baffle and the engine crankcase, where sheet metal corners have holes in them, and where hoses and wires pass through the baffling. Seal enough holes and gaps to exceed .899 square inch, or 1/8" x 7.2" , or l/4" x 3.6".
2. Use 890 or RTV 106 red high temperature sealants per manufacturers' instructions. Alternate sealants are GE RTV 102, 103, 108, 158; Dow Corning 732 RTV sealants; or equivalents.

PAPERWORK:

1. Add the cooling kit number to the aircraft equipment list.
2. Weight of this kit is .30 lbs.
3. Complete FAA Form 337 and make proper logbook entry of kit installation.
4. These installation instructions will become part of the permanent aircraft records.

DRAWING LIST

(Flange Installation Location Drawings & Measurements)

AIRCRAFT MODEL	DRAWING
CESSNA P210N	A
CESSNA 210R	B
CESSNA P210R; T210R	C
CESSNA 210L; 210M; 210N (Left Hand Drive Pad)	D
CESSNA 210N (Right Hand Drive Pad)	E
CESSNA T210L; T210M; T210N (Left Hand Drive Pad)	F
CESSNA T210L; T210M; T210N (Right Hand Drive Pad)	G
CESSNA 310P; 310Q	H
CESSNA 310R; T310P; T310Q	I
CESSNA T310R	J

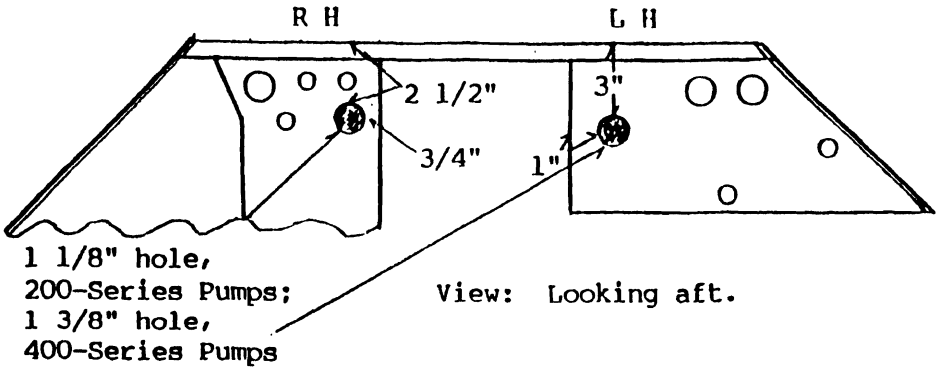
AIRCRAFT MODEL	DRAWING
PIPER PA-28-235;PA-28S-235;PA-32-260;PA-32-300;PA-32S-300; PA-32R-300;PA-32RT-300	K
PIPER PA-28-236; PA-32R-201; PA-32-301	L
PIPER PA-34-200T; PA-34-220T	M
BEECH A36TC; B36TC	N
BEECH F33A; S35; V35; V35A; V35B; 36; A36	O
MOONEY M20E; M20F	P
MOONEY 201 (M20J)	Q
MOONEY M20K	R
All above aircraft: View of Shroud on Pump, Ducting and Flange	1

STC AND ELIGIBILITY LISTING

TC NUMBER	STC NUMBER	ELIGIBILITY
3A21	SA 785GL	CESSNA 210L; 210M; 210N; T210L; T210M; T210N; T210R; P210N; P210R; 210R
A3SO	SA 1073GL	PIPER PA-32-260; PA-32-300; PA-32S-300; PA-32R-300; PA-32RT-300; PA-32R-301; PA-32-301
A7SO	SA 1015GL	PIPER PA-34-200T; PA-34-220T
3A15	SA 1034GL	BEECH F33A; S35; V35; V35A; V35B; 36; A36; A36TC; B36TC
2A3	SA 1074GL	MOONEY M20E; M20F; M20J; M20K
3A10	SA 1374GL	CESSNA 310P; 310Q; 310R; T310P; T310Q; T310R

CESSNA P210N - TC 3A21

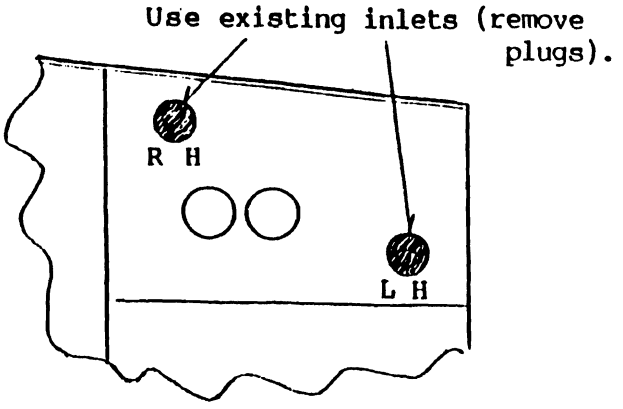
(AIRBORNE 200-212CW & CC and 400-Series PUMPS ONLY)



DRAWING A

CESSNA 210R - TC 3A21

(AIRBORNE 200-212CW & CC and 400-Series PUMPS ONLY)

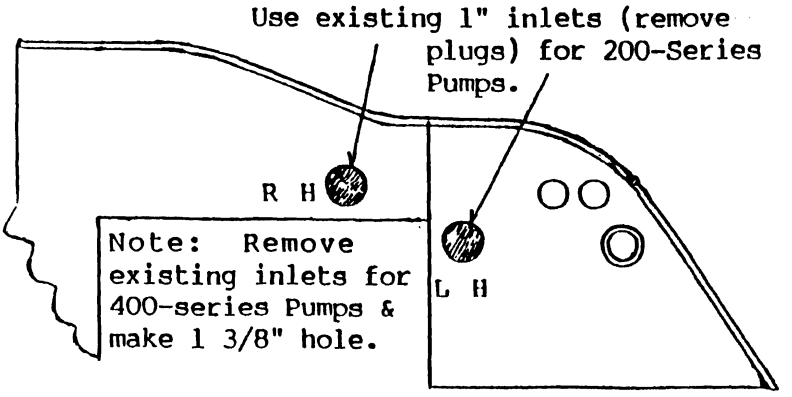


View: Looking aft L H side.

DRAWING B

CESSNA P210R, T210R - TC 3A21

(AIRBORNE 200-212CW & CC and 400-Series PUMPS ONLY)



View: Looking aft.

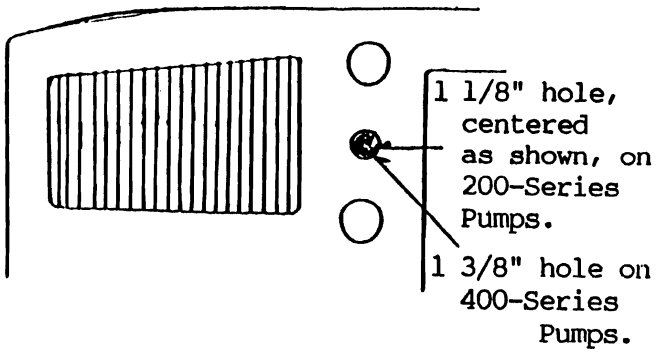
DRAWING C

FLANGE INSTALLATION DRAWINGS

CESSNA 210L; 210M; 210N TC 3A21

(AIRBORNE 200-212CW & CC and 400-Series Pumps Only)

Left Hand Drive Pad

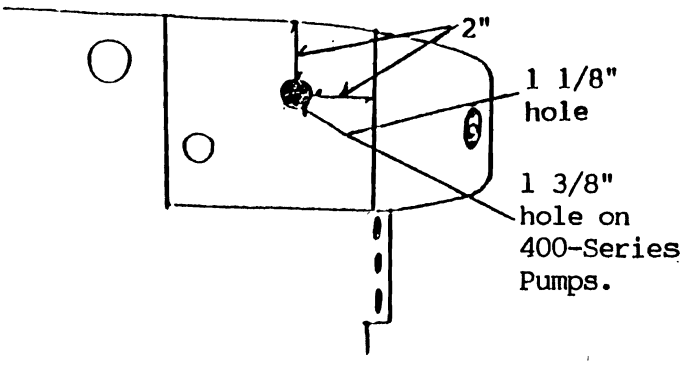


View: L H rear engine baffle, looking forward.

DRAWING D

CESSNA 210N TC 3A21

Right Hand Drive Pad

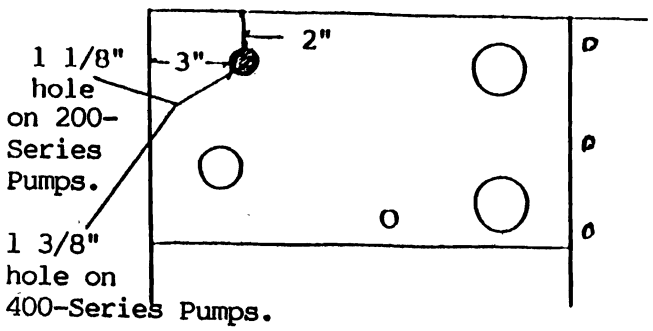


View: R H rear engine baffle, looking forward.

DRAWING E

CESSNA T210L; T210M; T210N TC 3A21

Left Hand Drive Pad



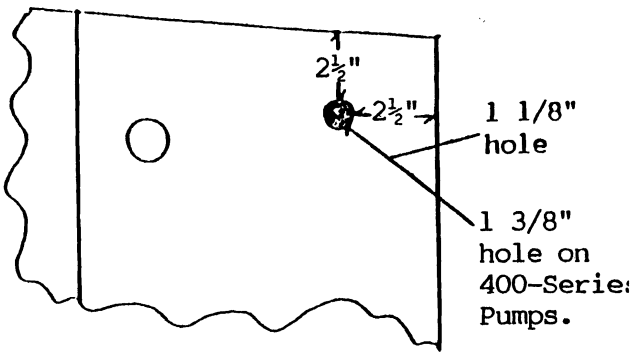
(AIRBORNE 200-212CW & CC and 400-Series Pumps Only)

View: L H rear engine baffle, looking forward.

DRAWING F

CESSNA T210L; T210M; T210N TC 3A21

Right Hand Drive Pad

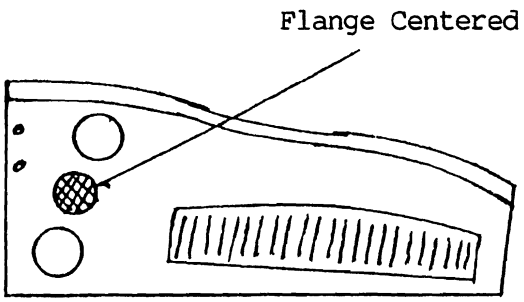


View: R H rear engine baffle, looking forward.

DRAWING G

FLANGE INSTALLATION DRAWINGS

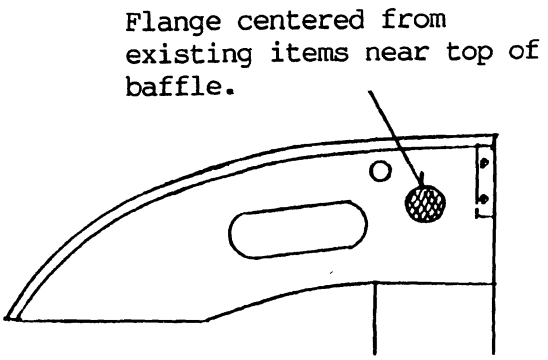
CESSNA 310P and 310Q TC 3A10



View: L H rear engine baffle, looking aft.

DRAWING H

CESSNA 310R; T310P; T310Q TC 3A10

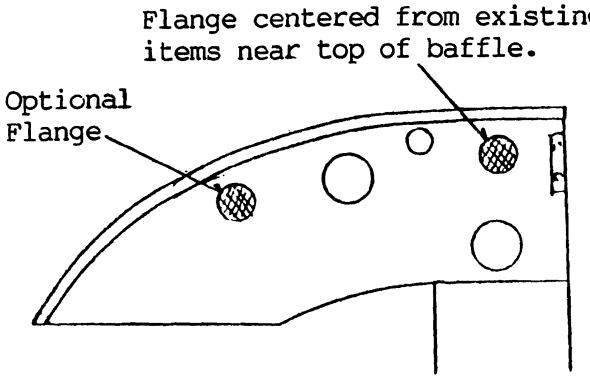


View: R H rear engine baffle, looking aft.

Note: Baffle configuration may vary between S/N's.

DRAWING I

CESSNA T310R TC 3A10

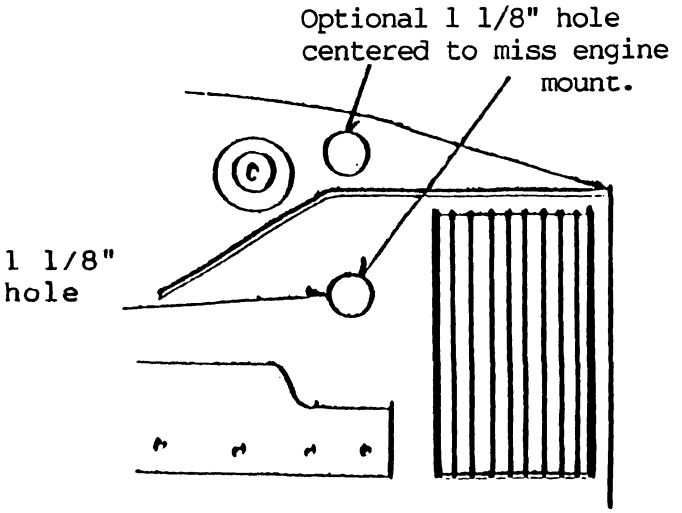


View: R H rear engine baffle, looking aft.

Note: Baffle configuration may vary between S/N's.

DRAWING J

PIPER PA-32-260; PA-32-300; PA-32S-300; PA-32R-300; PA-32RT-300 TC A3SO
PIPER PA-28-235; PA-28S-235 TC 2A13

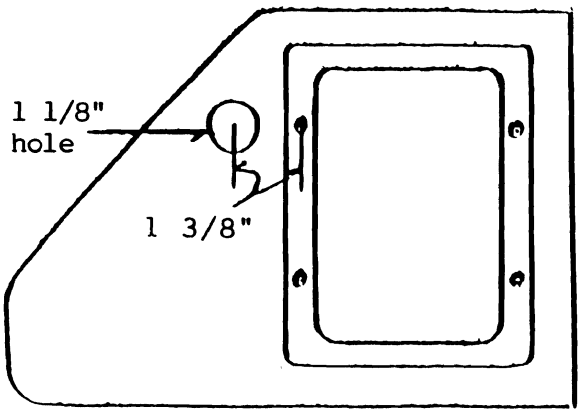


View: R H rear engine baffle, looking forward.

DRAWING K

FLANGE INSTALLATION DRAWINGS

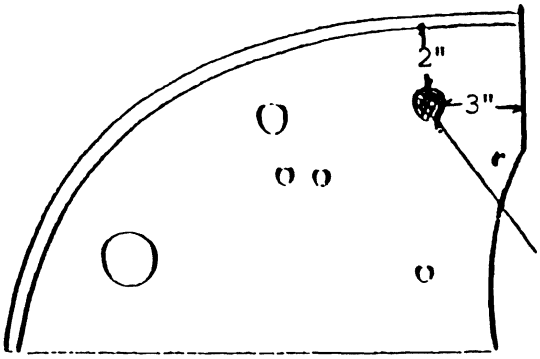
PIPER PA-28-236 TC 2A13
PIPER PA-32R-301; PA-32-301 TC A3SO



View: R H rear engine baffle, looking forward.

DRAWING L

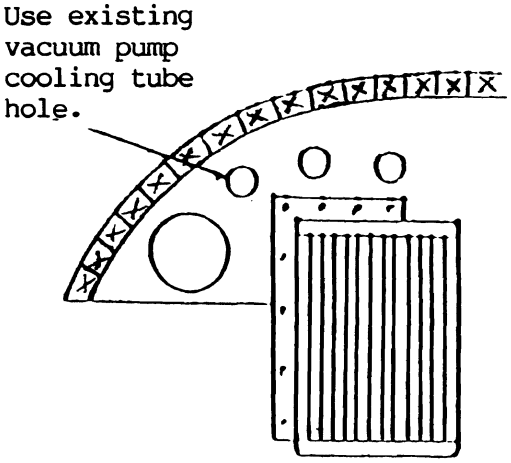
PIPER PA-34-200T; PA-34-220T TC A7SO



View: L H rear engine baffle, looking forward.

DRAWING M

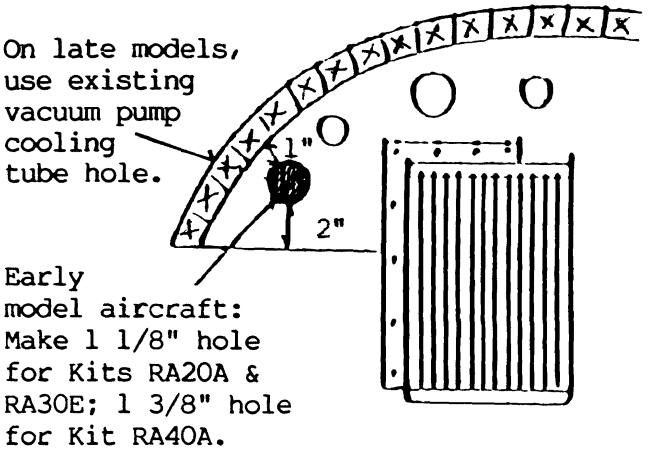
BEECH A36TC; B36TC TC 3A15



View: L H rear engine baffle, looking forward.

DRAWING N

BEECH F33A; S35; V35; V35A; V35B; 36; A36 TC 3A15



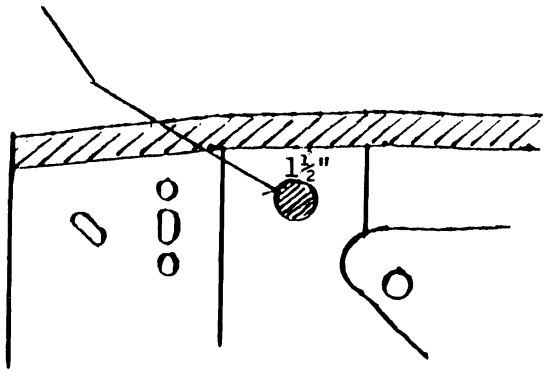
View: L H rear engine baffle, looking forward

DRAWING O

FLANGE INSTALLATION DRAWINGS

MOONEY M20E; M20F TC 2A3

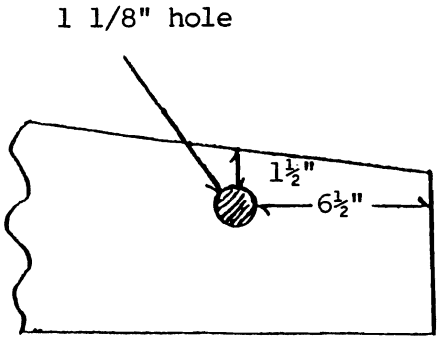
1 1/8" hole, centered as shown



View: R H rear engine baffle, looking aft.

DRAWING P

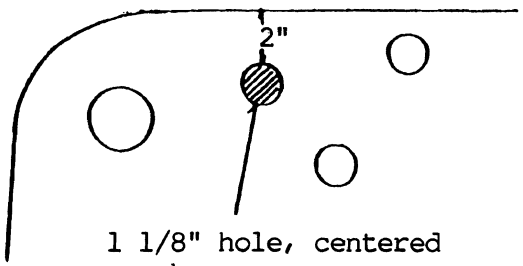
MOONEY 201 (M20J) TC 2A3



View: R H rear engine baffle, looking forward.

DRAWING Q

MOONEY M20K TC 2A3



1 1/8" hole, centered as shown.

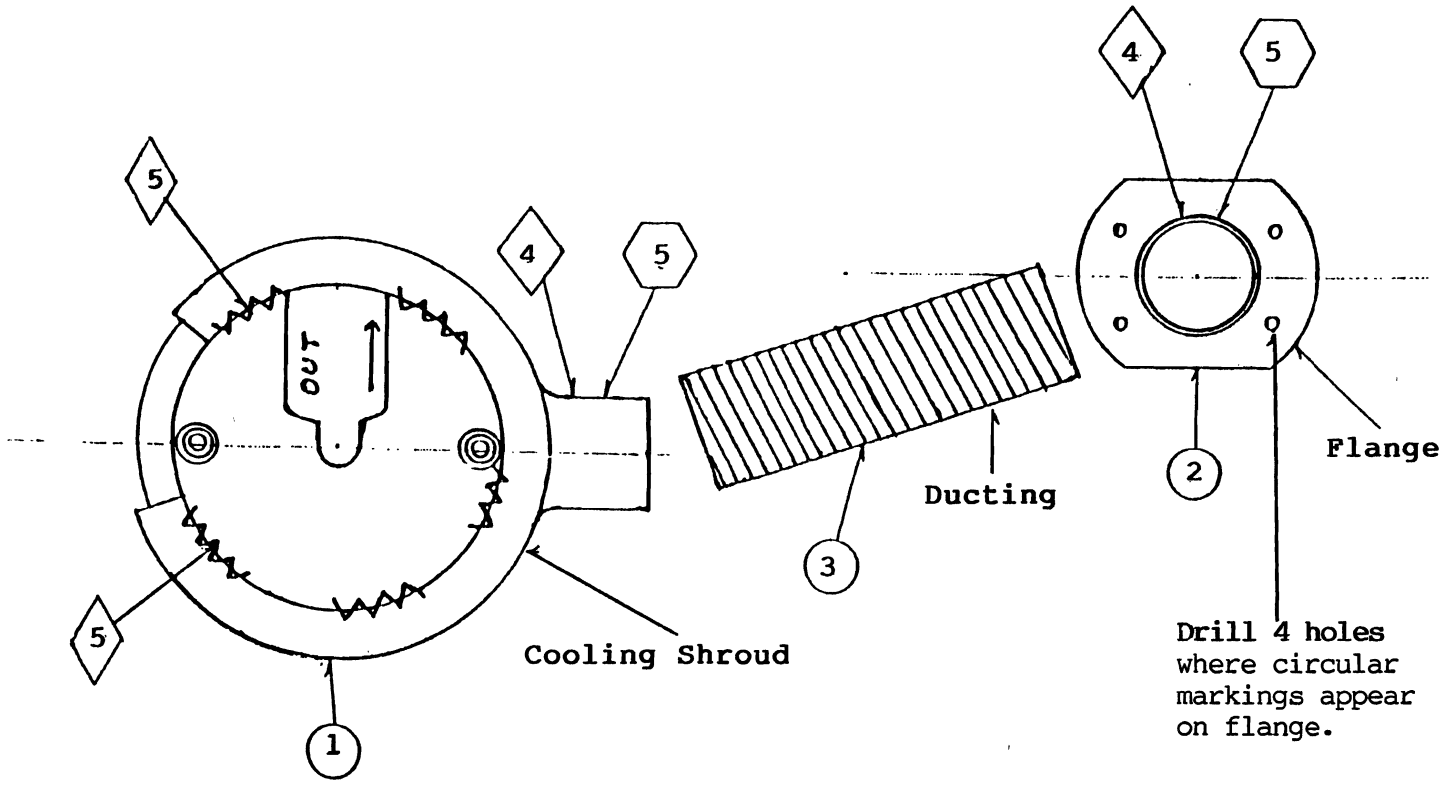
View: L H rear engine baffle, looking forward.

DRAWING R

FLANGE INSTALLATION DRAWINGS

KIT NO. RA40A

View of Cooling Shroud on Airborne 400-Series Pumps, Ducting & Flange



Note: Shroud must be centered on the pump.

4 **Cable Ties** - Attach these around ducting at inlet of shroud and outlet of flange after ducting has been sealed into place on the inlet and outlet.

5 **Sealant** - Place sealant on outside of shroud inlet and flange outlet, then push ducting into place. For type of sealant to be used, refer to "Sealing Requirements" in Installation Instructions. **Note:** If cooling shroud appears to rotate easily after installation, it may be advisable to place a sealant fillet between shroud and pump as shown.

5 **Optional** - Apply sealant fillet between shroud and pump, at the rear of the pump, as shown, to prevent shifting of shroud on pump.

DRAWING 1

Item	Qty	Nomenclature	Part No.
5	A/R	Sealant	
4	2	Cable Ties	RA2CDH-3
3	A/R	Ducting	RA6ADH-2
2	1	Flange	RA6ADH-1
1	1	Shroud	RA6ADH

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