

FLOW DIVIDER KIT 75 & 85 BACKHOES

FLOW DIVIDER KIT GENERAL INFORMATION

This kit is offered for skid-steer loader-mounted Alamo SMC and Rhino model 75 and 85 backhoes to use hydraulics circuit available at skid-steer hydraulic couplers to power backhoe.

Alamo SMC and Rhino model 75 backhoes operate best with hydraulic systems providing 5 to 7 gallons per minute hydraulic flow; model 85 backhoes operate best with hydraulic systems providing 8 to 10 gallons per minute of hydraulic flow. For a hi-flow (20 GPM or greater) hydraulic system, a flow divider kit is required to bring hydraulic flow provided to backhoe down to optimal operating range.

Flow divider kit consists of a flow divider valve and attaching hardware, a one-way flow restrictor, and hoses and fittings necessary to plumb backhoe control valve, flow divider valve and one-way restrictor to pressure and return hoses of backhoe hose kit.

References to left and right used in these instructions refer to position when seated in operating position on backhoe. Flow divider kit can be installed using tools ordinarily available. Install flow divider kit when installing hose kit to backhoe control valve.

NOTE: Apply sealant only to all tapered threads except when coupled with swivel adapters. When using teflon tape, wrap tape clockwise (as viewed from end) and wrap tape only twice. Keep sealant away from first two threads of tapered end to prevent contamination of hydraulic fluid. Do not use sealant on o-ring or flare adapter threads.



WARNING: Escaping hydraulic fluid under pressure can penetrate skin, causing serious injury.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
- Stop engine and relieve pressure before connecting or disconnecting lines.
- Tighten all connections before starting engine or pressurizing lines.

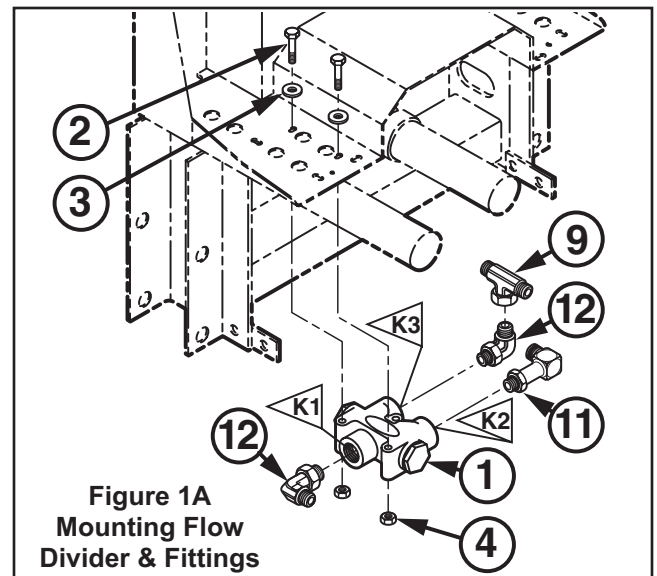
If any fluid is injected into skin, obtain medical treatment immediately or gangrene may result.

INSTALLING FITTINGS INTO FLOW DIVIDER VALVE (Figure 1A)

1. Install 3/4 JIC x 3/4 SAE x 90° male elbow fittings (12) into ports identified as "K1" and "K3" of flow divider valve (1).

IMPORTANT: K1 port is valve inlet port and receives hydraulic flow from skid-steer hydraulics; K2 port directs 60% of hydraulic flow to backhoe hydraulic circuit; and K3 port returns 40% of hydraulic flow to skid-steer return port. Flow restrictor (10) acts as a check valve to prevent hydraulic fluid from K3 port from running backwards through backhoe control valve. Take care when plumbing flow divider valve (1) to install fittings and connect hoses to correct ports.

2. Install 3/4 JIC x 3/4 SAE x 90° male long elbow fitting (11) into K2 port of flow divider valve (1).
3. Install 3/4" JIC branch tee (9) onto 3/4" x 90° male elbow (12) in K3 port of flow divider valve (1).



FASTENING FLOW DIVIDER VALVE TO BACKHOE STEP (Figure 1A)

Fasten flow divider valve (1), with assembled fittings (9, 11 & 12), to underside of backhoe left foot platform using 5/16 x 2-3/4" cap screws (2), flat washers (3) and lock nuts (4).

NOTE: Two 11/32 x 5/8" slotted holes at four-inch centers have been pre-punched in backhoe left foot platform to ease mounting flow divider valve (1).

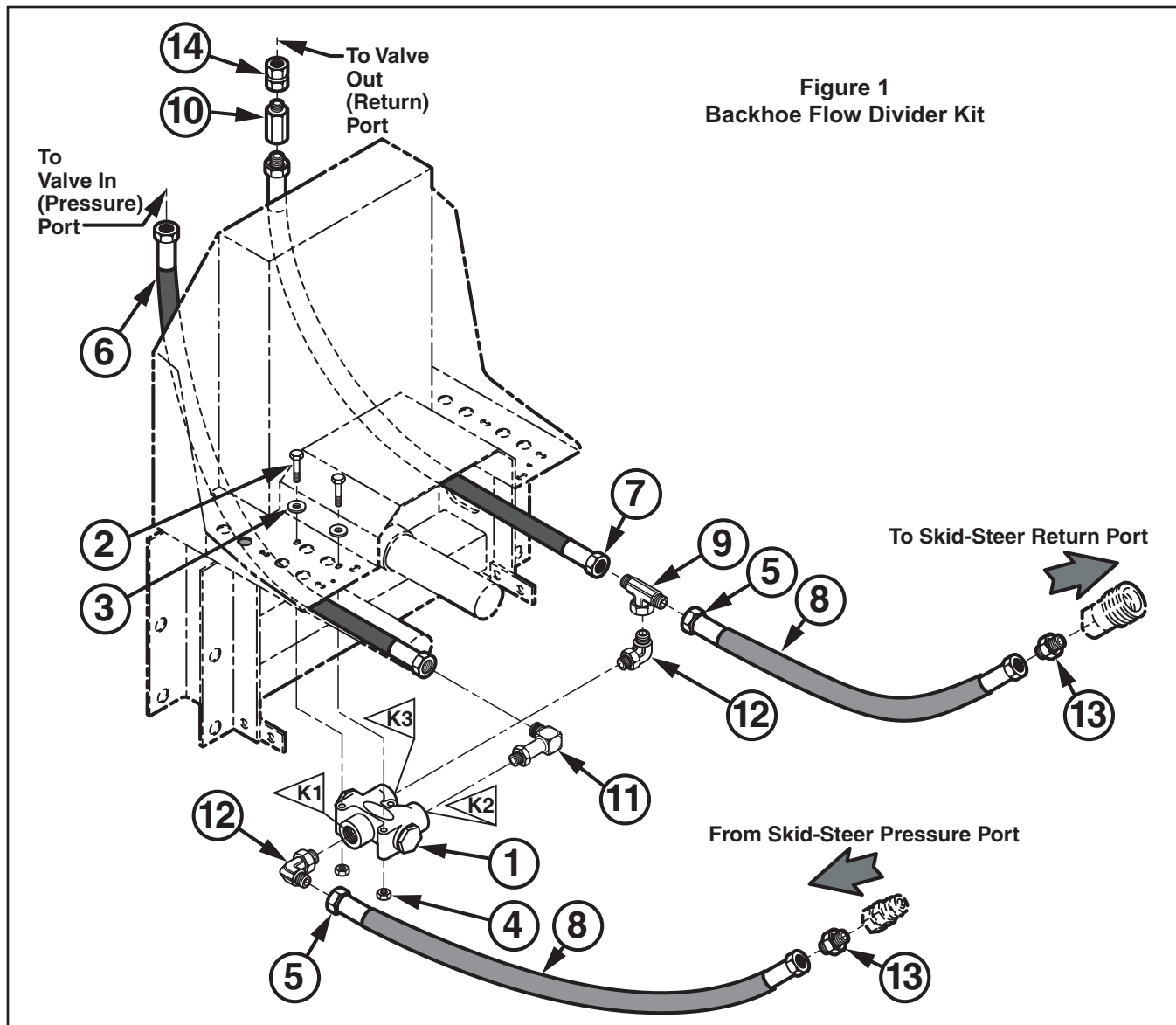
PLUMBING FLOW DIVIDER AND BACKHOE CONTROL VALVE TO BACKHOE HOSE KIT (Figures 1 & 2)

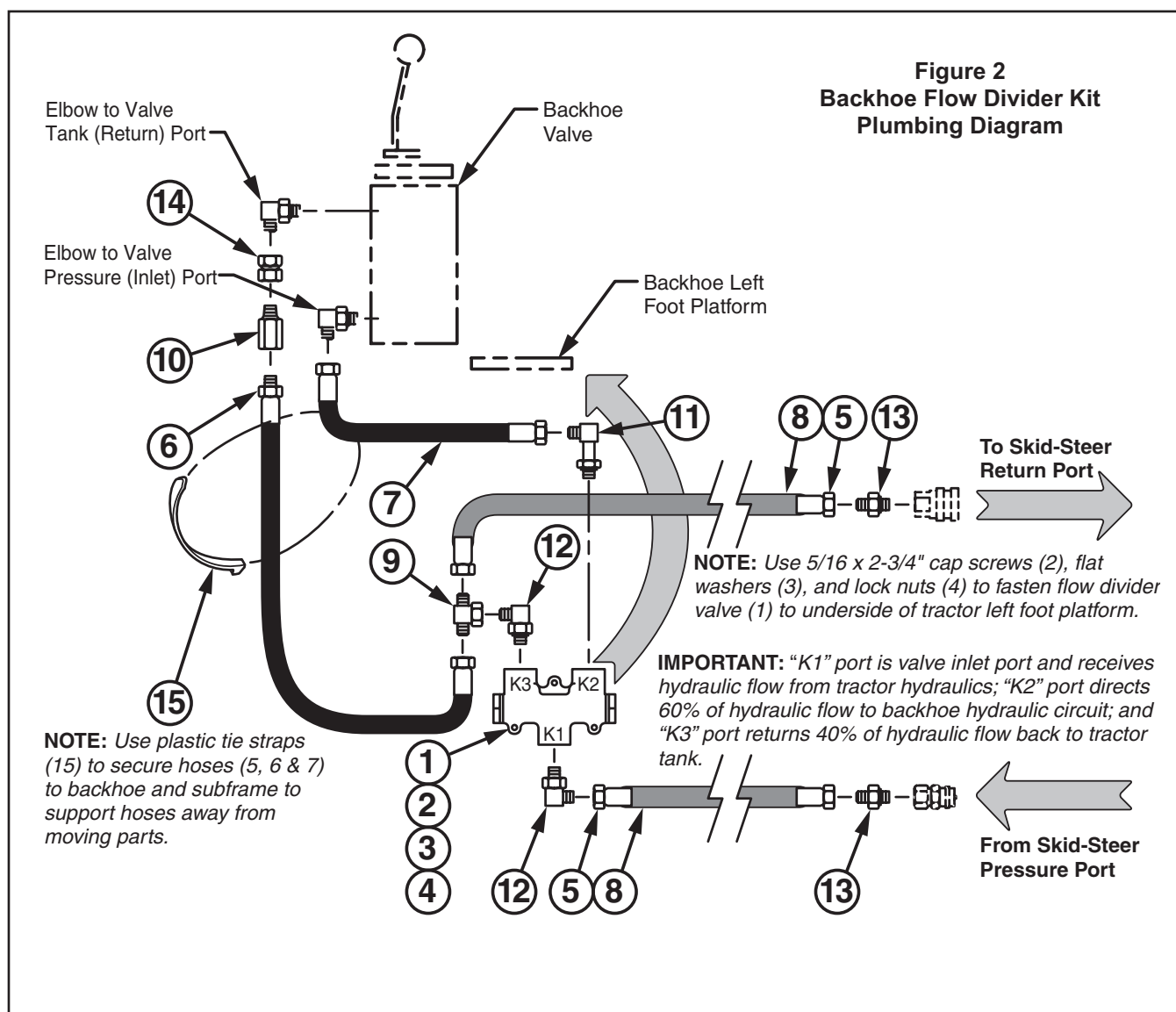
1. Install flow restrictor valve (10) onto male end of 1/2 x 30" hose (6). Connect female end of 1/2 x 30" hose (6) to one branch of 3/4" JIC branch tee (9) at K3 port of flow divider valve (1).
2. Connect end of 1/2 x 30" hose (6) with flow restrictor valve (10) installed to 1/2" NPTF x 3/4" JIC straight female swivel adapter fitting (14).
3. Install 1/2" NPTF x 3/4" JIC straight female swivel adapter (14) onto elbow in tank (return) port of backhoe control valve.
4. Connect one end of 1/2 x 24" hose (7) to 3/4 x 3/4 x 90° long male elbow (11) in K2 port of flow divider valve (1). Connect other end of 1/2 x 24" hose (7) to

elbow in pressure (inlet) port of backhoe control valve.

5. Install beveled end of each 3/4 x 3/4 straight adapter (13) into one end of each 1/2 x 50" hose (5). Slip one 1-1/4 x 50" nylon sleeve (8) over each hose (5). Fasten other end of one hose (5) to branch tee (9) at K3 port of flow divider valve (1). Fasten other end of other hose (5) to 3/4 x 3/4 x 90° elbow fitting (12) in K1 port of flow divider valve (1).
6. Refer to instructions provided with backhoe hose kit and skid-steer operator's manual to connect pressure and return hoses to skid-steer hydraulics.

When all plumbing is complete, recheck connections before pressurizing lines. Install backhoe according to instructions provided with backhoe subframe kit. Operate backhoe according to instructions in backhoe operator's manual and decals near backhoe control levers.





PARTS LIST – BACKHOE FLOW DIVIDER KIT

Item	Part No.	Description	Qty.
1	50474	VALVE, Flow Divider	1
2	41838-57	SCREW, Cap, 5/16-18 x 2-3/4", Grade 5	2
3	42502-7	WASHER, Flat, 5/16", N-SAE	2
4	41840-2	NUT, Lock, 5/16-18, Type N	2
5	41350-12	HOSE, 1/2 x 50", 3/4-16 JIC Female Swivel x 3/4-16 JIC Female Swivel	2
6	41053-19	HOSE, 1/2 x 30", 3/4-16 JIC Female Swivel x 1/2 NPTF Male	1
7	40350-4	HOSE, 1/2 x 24", 3/4-16 JIC Female Swivel x 3/4-16 JIC Female Swivel	1
8	34853-43	SLEEVE, Nylon Hose, 1-1/4" Dia. x 50"	2
9	50476-1	FITTING, Tee, Branch, 3/4-16 JIC Male, Both Ends x 3/4-16 JIC Female Swivel	1
10	6089-4	VALVE, Flow Restrictor, 1/2-14 NPTF, 2-1/8" Long, No Hole	1
11	41796-1	FITTING, Elbow, 90°, 3/4-16 JIC Male x 3/4-16 SAE O-Ring Male Extra Long	1
12	32845-2	FITTING, Elbow, 90°, 3/4-16 JIC Male x 3/4-16 SAE O-Ring Male	1
13	32844-4	FITTING, Straight, 3/4-16 JIC Male x 3/4-16 SAE O-Ring Male	2
14	45078-1	FITTING, Straight, 1/2-13 NPTF Female x 3/4-16 JIC Female Swivel	1
15	8137-1	STRAP, Plastic Tie, 3/16 x 11"	4

GENERAL TORQUE SPECIFICATIONS

USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN

Standard American and Metric Cap Screws

AMERICAN STANDARD CAP SCREWS										METRIC CAP SCREWS							
SAE Grade	5				8				Metric Class	8.8				10.9			
Typ. Head Markings									Typ. Head Markings								
Cap Screw	TORQUE				TORQUE				Cap Screw	TORQUE				TORQUE			
Size	FT-LBS		N-m		FT-LBS		N-m		Size	FT-LBS		N-m		FT-LBS		N-m	
Inches	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	Millimeters	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
1/4 - 20	6.25	7.25	8.5	10	8.25	9.5	11	13	M6 x 1.00	6	8	8	11	9	11	12	15
1/4 - 28	8	9	11	12	10.5	12	14	16	M8 x 1.25	16	20	21.5	27	23	27	31	36.5
5/16 - 18	14	15	19	20	18.5	20	25	27	M10 x 1.50	29	35	39	47	42	52	57	70
5/16 - 24	17.5	19	23	26	23	25	31	34	M12 x 1.75	52	62	70	84	75	91	102	123
3/8 - 16	26	28	35	38	35	37	47.5	50	M14 x 2.00	85	103	115	139	120	146	163	198
3/8 - 24	31	34	42	46	41	45	55.5	61	M16 x 2.50	130	158	176	214	176	216	238	293
7/16 - 14	41	45	55.5	61	55	60	74.5	81	M18 x 2.50	172	210	233	284	240	294	325	398
7/16 - 20	51	55	69	74.5	68	75	92	102	M20 x 2.50	247	301	335	408	343	426	465	577
1/2 - 13	65	72	88	97.5	86	96	116	130	M22 x 2.50	332	404	450	547	472	576	639	780
1/2 - 20	76	84	103	114	102	112	138	152	M24 x 3.00	423	517	573	700	599	732	812	992
9/16 - 12	95	105	129	142	127	140	172	190	M27 x 3.00	637	779	863	1055	898	1098	1217	1488
9/16 - 18	111	123	150	167	148	164	200	222	M30 x 3.00	872	1066	1181	1444	1224	1496	1658	2027
5/8 - 11	126	139	171	188	168	185	228	251	<p>NOTE: These values apply to fasteners as received from supplier, dry or when lubricated with normal engine oil. They do not apply if special graphite or molysulphide greases or other extreme lubricants are used.</p>								
5/8 - 18	152	168	206	228	203	224	275	304									
3/4 - 10	238	262	322	355	318	350	431	474									
3/4 - 16	274	305	371	409	365	402	495	544									
7/8 - 9	350	386	474	523	466	515	631	698									
7/8 - 14	407	448	551	607	543	597	736	809									
1 - 8	537	592	728	802	716	790	970	1070									
1 - 14	670	740	908	1003	894	987	1211	1337									

37° JIC Fittings

Size	Thread Size	Assembly Torque		Tube Connection F. F. F. T.	Swivel Nut or Hose Connection F. F. F. T.
		in.·lb.	ft.·lb.		
-4	7/16 - 20	140 ± 10	12 ± 1	2	2
-5	1/2 - 20	180 ± 15	15 ± 1	2	2
-6	9/16 - 18	250 ± 15	21 ± 1	1 1/2	1 1/4
-8	3/4 - 16	550 ± 25	45 ± 5	1 1/2	1
-12	1 1/16 - 12	1000 ± 50	85 ± 5	1 1/4	1
-16	1 5/16 - 12	1450 ± 50	120 ± 5	1	1
-20	1 5/8 - 12	2000 ± 100	170 ± 10	1	1
-24	1 7/8 - 12	2400 ± 150	200 ± 15	1	1
-32	2 1/2 - 12	3200 ± 200	270 ± 20	1	1

O-Ring Face Seal Tube/ Hose Swivel Nut

Metric Tube O.D. (mm)	Dash Size	Thread Size (in.)	Swivel Nut Hex Size (in.)	Swivel Nut Torque	
				N-m	lb _r ·ft
5	-3	--	--	--	--
6	-4	9/16 - 18	11/16	16	12
8	-5	--	--	--	--
10	-6	11/16 - 16	13/16	24	18
12	-8	13/16 - 16	15/16	50	37
16	-10	1 - 14	1-1/8	69	51
20	-12	1-3/16 - 12	1-3/8	102	75
22	-14	1-3/16 - 12	--	102	75
25	-16	1-7/16 - 12	1-5/8	142	105
32	-20	1-11/16 - 12	1-7/8	190	140
38	-24	2 - 12	2-1/4	217	160
50.8	-32	--	--	--	--

SAE O-Ring Fittings

Size	Swivel Nut or Hose	Assembly Torque		F. F. F. T.
		in.·lb.	ft.·lb.	
2	5/16 - 24	90 ± 5	7.5 ± 0.5	1 ± .25
3	3/8 - 24	170 ± 10	14 ± 1	1 ± .25
4	7/16 - 20	220 ± 15	18 ± 1	1 ± .25
5	1/2 - 20	260 ± 15	22 ± 1	1 ± .25
6	9/16 - 18	320 ± 20	27 ± 2	1.5 ± .25
8	3/4 - 16	570 ± 25	48 ± 2	1.5 ± .25
10	7/8 - 14	1060 ± 50	90 ± 5	1.5 ± .25
12	1 1/16 - 12	1300 ± 50	110 ± 5	1.5 ± .25
14	1 3/16 - 12	1750 ± 75	145 ± 6	1.5 ± .25
16	1 5/16 - 12	1920 ± 125	160 ± 6	1.5 ± .25
20	1 5/8 - 12	2700 ± 150	225 ± 12	1.5 ± .25
24	1 7/8 - 12	3000 ± 150	250 ± 12	1.5 ± .25
32	2 1/2 - 12	3900 ± 200	325 ± 15	1.5 ± .25

INSTALLATION INSTRUCTIONS