

TR250 & TR6 Brakes Overhauling Brake Pipes

These notes describe what I did on my car for my personal use and are provided here for entertainment; they are not meant to be instructions for others to do maintenance on their vehicles.

All the pipes and fittings may seem overwhelming at first glance. On the other hand, all the pipes may look the same, all the hoses the same, etc. --- until you find you put the right part in the wrong place. As with most problems, a little attention to detail reveals that there is a good reason when each part is the way it is and the parts that all looked the same at first glance start to look different with a little closer inspection. The parts are described in excruciating detail below followed by pictures of the pipes on the bare frame.

Fitting Size & Threads: All the fittings use standard machine threads. Three sizes are used as follows:

- 7/16 -24 TPI is used for the front brake pipes from the master cylinder to the PDWA. This is done so that the pipes for the front and rear parts of the system are not mixed up.
- 10mm - 1.0 mm pitch is used on the front caliper input pipe and bleed nipple after CC81079.
- 3/8-24 TPI is used on all other pipes, hoses, fittings, cylinders, calipers and bleed nipples.

Pipe Flares: Two types of flares are used on the pipes as shown in photo on the right. The male type (left in photo) mates with calipers, cylinders and tees whereas the female type (right in photo) mates with hoses and a 2-way coupling. The nuts turn freely around the pipe. The seal is achieved when the nut forces the flare against the mating fitting.



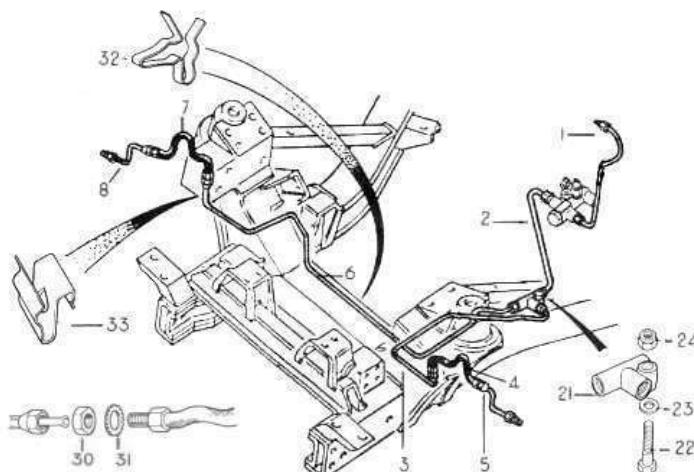
Fitting Sex: The photo on the right shows both male and female fittings on the pipes and the male fittings on the hoses. The calipers, wheel cylinders, master cylinder, PDWA and Tees all have female fittings. The hoses all have male fittings on both ends. The pipes have a mixture of male and female fittings as required for the specific pipe.



Replacement Pipes & Hoses: Several vendors sell replacement pipes and hoses. Some are sold already bent to the correct shape while others you bend yourself. The lines are fairly soft and bend quite easily and are not prone to kinking. This time I bought the pipes that attach to the calipers bent to shape and the rest unbent. I was able to salvage the pipes between the master cylinder so those two were not purchased new. I am very careful to make sure the hoses are top quality. I use the standard hoses. I understand other style hoses such as braided steel are available. I've had no experience with other than the standard hoses.

Front Pipes: The sketch on the right shows the pipes for the front brakes. The sketch came from the TRF red TR250 catalog. There is a similar sketch in the blue TR6 catalog. I cut the sketch in half and processed it to illustrate the points of interest.

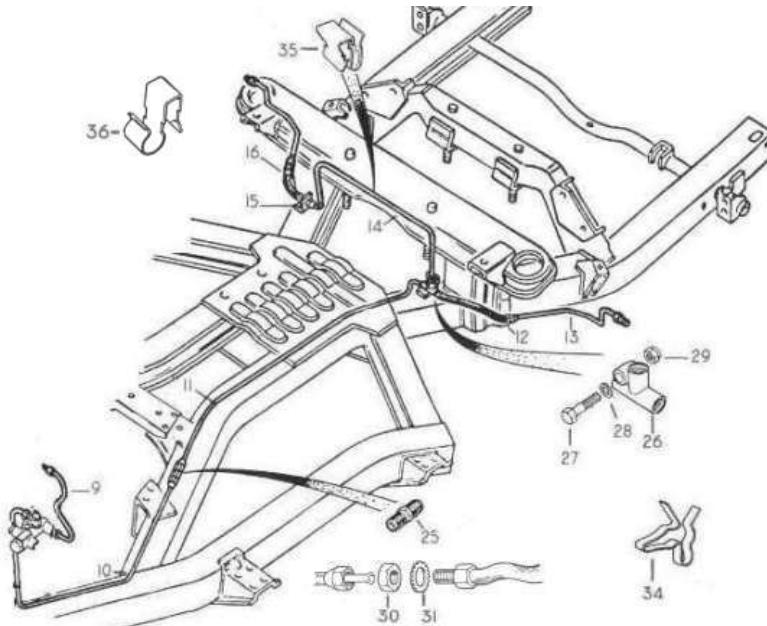
The table below lists the Triumph parts numbers (if there are two Triumph numbers, first is for TR250 and second for TR6) and TRF numbers if different. I purchased the new lines and hoses from TRF and am happy with them. A little plug is appropriate since I swiped their catalog graphics.



Parts for Front Brake Lines		
Sketch #	Part #/TRF#	Description (hose & pipe lengths are tip-to-tip)
1	148791-309730	Brake Pipe from master cylinder to PDWA. About 13 1/2 inches long fitted

		with 7/16" 24 TPI male nuts at each end. I was able to salvage the old pipe.
2	148815-309728 BPH14	Brake Pipe from PDWA to Tee fitting. 14 inches long fitted with 7/16" 24 TPI male nut at PDWA end and 3/8" 24 TPI male nut at Tee end.
3	147636-309720 BPD22	Brake Pipe from Tee fitting to left brake hose. 22 inches long fitted with a 3/8" 24 TPI male nut at Tee end and a 3/8" 24 TPI female nut at hose end.
4	143320-GIGHP13	Brake Hose. 13 5/8 inches long with 3/8" 24 TPI male threads on both ends.
5	141591-309723 BPD5	Brake pipe from hose to left caliper. This is the one with imperial threads on the caliper end for commission numbers to CC81078. About 4 1/2 inches long with male 3/8 24 TPI nut on the caliper end and female 3/8 24 TPI nut on the hose end. I purchased the 309723 which is pre-bent because the bends are short and appeared to be tricky.
	312550	Brake pipe from hose to left caliper. This is the one with metric threads on the caliper end for commission numbers after CC81078. About 4 1/2 inches long with male 10 mm diameter 1mm pitch nut on caliper end and female 3/8 24 TPI nut on the hose end.
6	308150-309721 BPD42	Brake Pipe from Tee fitting to right brake hose. 42 inches long fitted with a 3/8" 24 TPI male nut at Tee end and a 3/8" 24 TPI female nut at hose end.
7	143320-GIGHP13	Brake Hose. 13 5/8 inches long with 3/8" 24 TPI male threads on both ends.
8	141590-309722 BPD5	Brake pipe from hose to left caliper. This is the one with imperial threads on the caliper end for commission numbers to CC81078. About 4 1/2 inches long with male 3/8 24 TPI nut on caliper end and female 3/8 24 TPI nut on the hose end. I purchased the 309722 which is pre-bent because the bends are short and appeared to be tricky.
	312551	Brake pipe from hose to right caliper. This is the one with metric threads on the caliper end for commission numbers after CC81078. About 4 1/2 inches long with male 10 mm diameter 1mm pitch nut on caliper end and female 3/8 24 TPI nut on the hose end.
21	136908	Tee fitting. This brass fitting has three female 3/8 -24 TPI connections. I salvaged the old fitting, blasted it and powder coated it with clear.
22-23-24	HB710D-WP7 -TN3207	Bolt, flat washer and nyloc nut securing tee to frame. The bolt is 1/4" - 28 TPI 1 1/4 inches long. I substituted stainless steel parts here.
30-31	516614-WN709	Nut and shake proof washer to secure one end each hose to each front suspension turret and the other end to the hose bracket on the front suspension (2 of each required for each hose). I substituted 3/8" -24 TPI stainless steel components for the standard hardware
32	59191	Clip securing right brake pipe to frame cross member.
33	137048	Clip securing right front pipe to suspension turret. This is not listed in the TRF price book so I assume it's not available. A similar clip is not used on the left side so it is probably no great loss if not used here. I checked a half dozen TR6s and TR250s and found that none had this clip.

Rear Pipes: The sketch on the right is for the rear half pipes and is also from the TRF catalog. The parts are listed below.



Parts for Rear Brake Lines		
Sketch #	Part #/TRF#	Description (hose & pipe lengths are tip-to-tip)
9	148790-309729	Brake Pipe from master cylinder to PDWA. About 15 inches long fitted with 3/8" 24 TPI male nuts at each end. I was able to salvage the old pipe.
10	308348-309731 BPD36	Brake Pipe from PDWA to 2-way coupling. 36 inches long filled with 7/16" 24 TPI male nut at PDWA end and 3/8" 24 TPI male nut at 2-way coupling end.
11	308347-309725 BPD50	Brake Pipe from 2-way coupling to tee fitting. 50 inches long fitted with a 3/8" 24 TPI female nut at the 2-way coupling end and a 3/8" 24 TPI male nut at tee end.
12	143564- GIGHP14	Brake Hose for left rear between the tee and the pipe on suspension arm. About 8 1/2 inches long with 3/8" 24 TPI male threads on both ends. My (very old) copy of the TRF blue catalog incorrectly lists the GIGHP15 hose for the left side. The fitting on the GIGHP14 that mates with the tee is cut off square at the end and requires the washer listed next to seal the connection.
	107072	Copper washer between left rear brake hose and tee. This is a standard 3/8" ID washer. I obtained one from Lowe's.
13	143523-309726 BPC18	Brake pipe from hose to left wheel cylinder. 18 inches long with male 3/8 24 TPI nut on wheel cylinder end and female 3/8 24 TPI nut on the hose end.
14	141588-309724 BPD22	Brake Pipe from Tee fitting to right brake hose. 22 inches long fitted with a 3/8" 24 TPI male nut at Tee end and a 3/8" 24 TPI female nut at hose end.
15	143565- GIGHP15	Brake Hose for right rear between the pipe from the tee and the pipe on suspension arm. About 9 inches long with 3/8" 24 TPI male threads on both ends. My (very old) copy of the TRF blue catalog incorrectly lists the GIGHP14 hose for the right side.
16	143524-309727 BPC18	Brake pipe from hose to right wheel cylinder. 18 inches long with male 3/8 24 TPI nut on wheel cylinder end and female 3/8 24 TPI nut on the hose end.
26	136908	Tee fitting. This brass fitting has three female 3/8 -24 TPI connections. I salvaged the old fitting, blasted it and powder coated it with clear.
27-28-29	HB710D-WP7 -TN3207	Blot, flat washer and nyloc nut securing tee to frame. The bolt is 1/4" - 28 TPI 1 1/4 inches long. I substituted stainless steel parts here.
30-31	516614-WN709	Nut and shake proof washer to secure one end each hose to each rear suspension (1 of each required for each hose). An additional nut and washer are required to secure the right hose to the bracket on the frame. I substituted 3/8" -24 TPI stainless steel components for the standard hardware
34	59191	Culp securing rear brake pipe to frame between PDWA and 2 -way coupling.
35	618386	Clip securing the pipe to frame cross member. This is not listed in the TRF price book so I assume it's not available. I pulled one off a frame and found that it was identical to the next clip. The two part numbers are very similar. I wonder if the part number for this one is an error.
36	615836	Clip securing rear cylinder pipe to suspension arm (2 required).

Pictures of Installed Pipes: No pictures yet because the pipes aren't installed yet. Pictures should be here by the spring of 2003.

links to other notes on [Brake Theory & Overview](#)
TR250 & TR6 Brakes: [Overhauling Brake Master Cylinder & PDWA](#)
[Overhauling Brake Servo](#)
[Overhauling Pedal Assembly](#)
[Overhauling Front Brakes](#)
[Overhauling Rear Brakes](#)
[Overhauling Handbrake](#)
[Selecting Brake Fluid](#)
[Bleeding & Adjusting Brakes](#)
[Troubleshooting Brakes](#)