

Bell Helicopter **TEXTRON**

A Subsidiary of Textron, Inc.

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INFORMATION LETTER 212-00-35 412-00-40 412CF-00-4

TO: **All Owners/Operators of Bell 212, 412, 412EP and 412CF Helicopters.**

SUBJECT: **DRAIN MAPS**

Identifying the cause of a leak coming out of a drain on a medium-size helicopter might, sometimes, become a challenge. This *Drain Map* was put together in order to help you perform this task. Following a drain line to find its origin is, at times, very difficult without extensive disassembly, as the line *disappears* in the inner structure.

When a drop or a puddle is noticed as coming from a drain line, locate the drain line on Figure 1 and/or 2. Each numbered dot on the figure represents a drain and is located as accurately as possible in relation to adjacent structure. The size of the dot represents the relative diameter of the tube. Refer to Table 1 and/or 2 for the rest of the data.

The *Description* column in Table 1 or 2 gives a list of the items that drain to this tube or the function of the tube (i.e. #1 Engine deck drain). The *Meet in/at* column states where the different items drains meet. The item drain lines may then be separated to further push the investigation. Finally, the *Liquids* column gives the potential liquids that could be coming out of this drain, for reference. In the *Liquids* column, "Water" means Drainage liquids and includes all other liquids as in the case of a deck drain.

These *Drain Maps* were elaborated using data from the later-serial number aircraft and might be slightly out of accuracy for the earlier aircraft. It has to be used as a reference only. Any additional question regarding these *Drain Maps* may be addressed to Product Support Engineering, Medium helicopters.

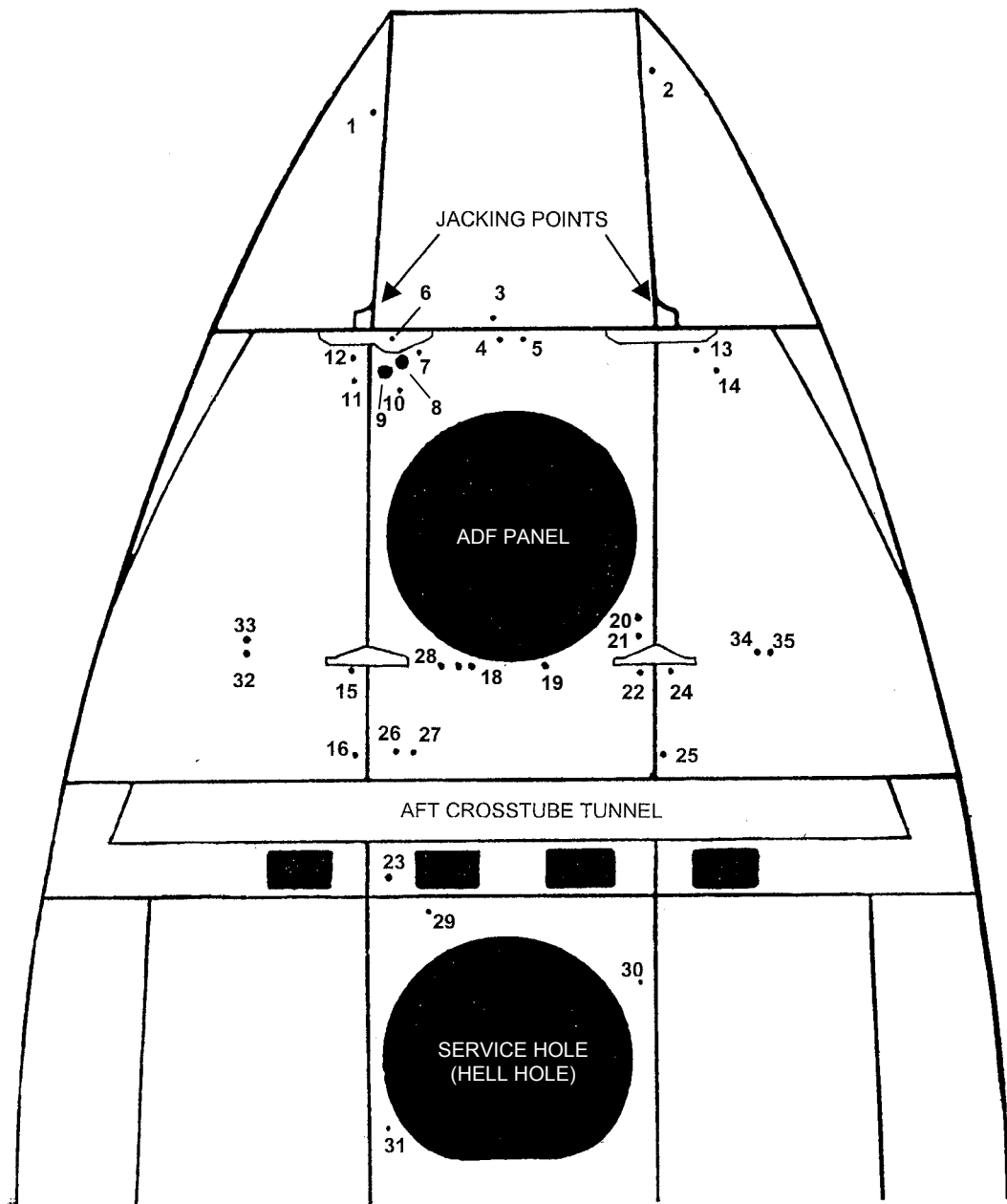


Figure 1
 Model 212 Belly
 (Looking Up)

Table 1:

Drain Number	Description	Meet in/at	Liquids
1, 2	Combining gearbox deck drain	-	Water
3	#1 Engine oil cooler drain valve #2 Engine oil cooler drain valve Combining gearbox oil cooler inlet line drain valve Combining gearbox oil cooler outlet line drain valve #1 Engine blower seal drain #2 Engine blower seal drain Combining gearbox oil filler scupper drain	Combining gearbox area and Tail rotor servo compartment	Oil, Water
4	#1 Engine center deck drain	-	Water
5	#2 Engine center deck drain	-	Water
6	#1 Engine burner drain valve #1 Engine exhaust pipe drain #2 Engine burner drain valve #2 Engine exhaust pipe drain Combining gearbox output seal drain	ADF panel and L/H side of Combining gearbox deck	Fuel, oil, water
7	#1 Engine oil scupper drain #1 Engine accessory gearbox drain valve #1 Engine FCU seal drain #1 Engine starter seal drain #2 Engine oil scupper drain #2 Engine accessory gearbox drain valve #2 Engine FCU seal drain #2 Engine starter seal drain	ADF panel and Engine accessory gearbox area (corner panels in cabin)	Oil
8	Main fuel cell R/H vent system	Top of fuel cell cavity	Fuel
9	Main fuel cell L/H vent system	Top of fuel cell cavity	Fuel
10	#1 Engine fuel filter drain valve #1 Engine FCU internal seal drains #2 Engine fuel filter drain valve #2 Engine FCU internal seal drains	Engine accessory gearbox areas and ADF panel	Fuel
11	Combining gearbox deck drain	-	Water
12	#1 Engine center deck drain	-	Water
13	#2 Engine center deck drain	-	Water
14	Combining gearbox deck drain	-	Water
15, 16	L/H main fuel cell cavity drains	-	Fuel, Water
17, 18	#1 Engine accessory gearbox deck drains	-	Water
19	Main fuel cell vent system	-	Fuel, Water

Drain Number	Description	Meet in/at	Liquids
20	#2 Engine center deck drain		
21	#2 Engine Accessory gearbox deck drain	-	Water
22, 23	Main fuel cell cavity drains	-	Fuel, Water
24, 25	R/H main fuel cell cavity drains	-	Fuel, Water
26, 27	Transmission oil cooler line drain valves	-	Oil
28	Main fuel cell vent system	-	Fuel
29	Transmission sump drain valve Transmission filler scupper drain Debris monitor scupper drain Transmission input seal drain	Under and around main transmission	Oil, Water
30	#1 Hydraulic oil reservoir scupper drain #1 Hydraulic pump seal drain	Forward of main transmission case	Oil, Hydraulic
31	#2 Hydraulic oil reservoir scupper drain	-	Oil, Hydraulic
32	#1 Engine center deck drain	-	Water
33	#1 Engine accessory gearbox deck drain	-	Water
34	#2 Engine center deck drain	-	Water
35	#2 Engine accessory gearbox deck drain	-	Water

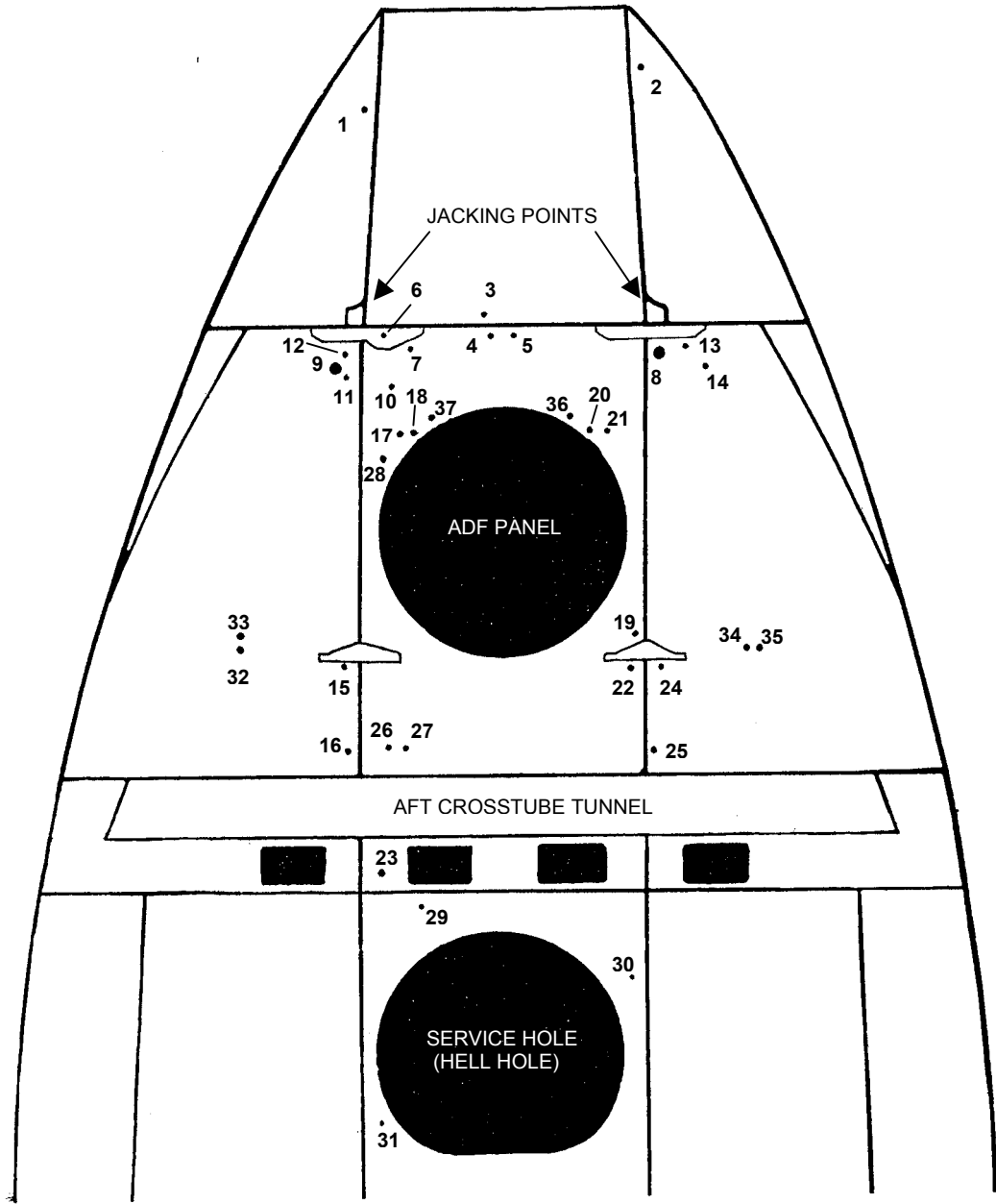


Figure 2
 Model 412, 412EP & 412CF
 Belly (Looking Up)

Table 2:

Drain Number	Description	Meet in/at	Liquids
1, 2	Combining gearbox deck drain	-	Water
3	#1 Engine oil cooler drain valve #2 Engine oil cooler drain valve Combining gearbox oil cooler inlet line drain valve Combining gearbox oil cooler outlet line drain valve #1 Engine blower seal drain #2 Engine blower seal drain Combining gearbox oil filler scupper drain	Combining gearbox area and Tail rotor servo compartment	Oil, Water
4	#1 Center engine deck drain	-	Water
5	#2 Center engine deck drain	-	Water
6	#1 Engine burner drain valve #1 Engine exhaust pipe drain #2 Engine burner drain valve #2 Engine exhaust pipe drain Combining gearbox output seal drain	ADF panel and L/H side of Combining gearbox deck	Fuel, oil, water
7	#1 Engine oil scupper drain #1 Engine accessory gearbox drain valve #1 Engine FCU seal drain #1 Engine starter seal drain #2 Engine oil scupper drain #2 Engine accessory gearbox drain valve #2 Engine FCU seal drain #2 Engine starter seal drain	ADF panel and Front of engine accessory gearbox area (corner panels in cabin)	Oil
8	Main fuel cell R/H vent system	Top of fuel cell cavity	Fuel
9	Main fuel cell L/H vent system	Top of fuel cell cavity	Fuel
10	#1 Engine fuel filter drain valve #1 Engine MFCU internal seal drains #2 Engine fuel filter drain valve #2 Engine MFCU internal seal drains	Engine accessory gearbox areas and ADF panel	Fuel
11	Combining gearbox deck drain	-	Water
12	#1 Center engine deck drain	-	Water
13	#2 Center engine deck drain	-	Water
14	Combining gearbox deck drain	-	Water
15, 16	L/H main fuel cell cavity drains	-	Fuel, Water
17, 18	#1 Engine accessory gearbox deck drains	-	Water
19	Aft main fuel cell cavity drain	-	Fuel, Water
20, 21	#2 Engine Accessory gearbox deck drain	-	Water

Drain Number	Description	Meet in/at	Liquids
22, 23	Main fuel cell cavity drains	-	Fuel, Water
24, 25	R/H main fuel cell cavity drains	-	Fuel, Water
26, 27	Transmission oil cooler line drain valves	-	Oil
28	Aft main fuel cell cavity drain	-	Fuel
29	Transmission sump drain valve Transmission filler scupper drain Debris monitor scupper drain Transmission input seal drain	Under and around main transmission	Oil, Water
30	#1 Hydraulic oil reservoir scupper drain #1 Hydraulic pump seal drain	Forward of main transmission case	Oil, Hydraulic
31	#2 Hydraulic oil reservoir scupper drain	-	Oil, Hydraulic
32	#1 Center engine deck drain	-	Water
33	#1 Engine accessory gearbox deck drain	-	Water
34	#2 Center engine deck drain	-	Water
35	#2 Engine accessory gearbox deck drain	-	Water
36	#2 Center engine deck drain	-	Water
37	#1 Center engine deck drain	-	Water