TABLE 8.1. TROUBLESHOOTING DIRECT-DRAW SYSTEMS

Problem	Possible Cause	Possible Solution
Beer foaming	Temperature too warm at the faucet (keg box should be 38°F)	Adjust temperature control or call qualified service person
	Temperature too cold/frozen beer in lines (should be 38°F)	
	Kinked beer line	Change beer line
	Wrong beer line length or diameter (should be 4–5 ft. of 3/16" ID vinyl tubing; possibly even longer)	
	Applied pressure too high	Adjust CO_2 regulator to brewer's specification
	Applied pressure too low	
	Coupler washer defective	Replace coupler washer
	Faucet washer defective	Replace faucet washer
	System dirty	Clean system or call line cleaning service
	CO_2 leaks or the draught system is out of CO_2	Check fittings, clamps, shut-offs, and regulators; replace as necessary
	Beer foaming in jumper line due to torn or ripped keg valve seal	If seal is ripped/torn, gas enters the liquid flow stream, causing foaming. Replace keg and report defective keg to distributor
	Beer foaming in jumper line due to physical obstruction at coupler–valve junction	Remove any physical obstruction or debris (e.g., a piece of a dust cover) that could prevent the coupler from fully engaging and allowing gas to enter the liquid flow
	Beer foaming at faucet due to clogged vent hole(s)	Disassemble and clean faucet, or call line cleaning service
No beer at faucet	Empty CO_2 bottle	Replace with full CO_2 bottle
	Regulator shut-off valve closed	Open shut-off valve
	CO_2 bottle main valve turned off	Turn on CO_2 bottle main valve
	Keg empty	Replace with full keg
	Coupler not engaged	Tap keg properly and engage coupler
	Check ball in coupler one-way valve stuck	Free check ball
	Line/faucet dirty	Clean line/faucet

TABLE 8.2. AIR-COOLED SYSTEMS

Problem	Possible Cause	Possible Solution
Beer foaming	Temperature at faucet too warm (should be 38°F)	Check blower fan's air flow is not obstructed
		Adjust temperature control or call qualified service person
		System designed improperly: too long, wrong size fan, etc.
		Check temperature of beer in keg
	Temperature at faucet too cold (should be 38°F)	Adjust temperature control or call qualified service person
	Kinked beer line	Change beer line
	Wrong size beer line	
	Applied pressure too high	Adjust CO_2 regulator to brewer's specification
	Applied pressure too low	
	Wrong dispensing gas (mixed gas blenders recommended)	Change to mixed gas blender and use target pressure
	Coupler washer defective	Replace coupler washer
	Faucet washer defective	Replace faucet washer
	System dirty	Clean system or call line cleaning service
	Beer foaming in jumper line due to torn or ripped keg valve seal	If seal is ripped/torn, gas enters the liquid flow stream, causing foaming. Replace keg and report defective keg to distributor
	Beer foaming in jumper line due to physical obstruction at coupler–valve junction	Remove any physical obstruction or debris (e.g., a piece of a dust cover) that could prevent the coupler from fully engaging and allowing gas to enter the liquid flow
	Beer foaming at faucet due to clogged vent hole(s)	Disassemble and clean faucet, or call line cleaning service
No beer at faucet	Empty CO_2 bottle, N_2 bottle, or mixed gas bottle	Replace with appropriate full gas bottle
	Regulator shut-off valve closed	Open shut-off valve
	Gas bottle main valve turned off	Turn on gas bottle main valve
	Keg empty	Replace with full keg
	Coupler not engaged	Tap keg properly and engage coupler
	Check ball in coupler one-way valve stuck	Free check ball
	Line/faucet dirty	Clean line/faucet

Note: For air-cooled systems, the maximum recommended distance for a double-duct system is 25 ft. (tube side by side) and for a single-duct system it is 15 ft. (tube within a tube).

TABLE 8.3. GLYCOL-CHILLED SYSTEMS

Problem	Possible Cause	Possible Solution
Beer foaming	Temperature at faucet too warm or too cold (should be 38°F)	Check glycol chillers for proper operation; adjust glycol bath temperature if too warm or too cold (most systems are designed to operate between 28°F and 34°F; check unit manufacturer's specs)
		Adjust temperature control or call qualified service person
	Wrong dispensing gas (glycol systems usually require a mixed gas blender)	Change to mixed gas blender and use target pressure
	Glycol pump functioning (check return line)	Call qualified service person to adjust glycol chiller temperature or operation
	Gas regulators incorrectly set	Contact installer
	Applied pressure too low	Adjust CO_2 regulator to brewer's specification
	Applied pressure too high	
	Coupler washer defective	Replace coupler washer
	Faucet washer defective	Replace faucet washer
	System dirty	Clean system or call line cleaning service
	Glycol power pack failure; check condenser, glycol concentration	Call qualified service person to clean clogged condenser fins, check glycol strength, and service glycol chiller
	Beer foaming in jumper line due to torn or ripped keg valve seal	If seal is ripped/torn, gas enters the liquid flow stream causing foaming. Replace keg and report defective keg to distributor
	Beer foaming in jumper line due to physical obstruction at coupler–valve junction	Remove any physical obstruction or debris (e.g., a piece of a dust cover) that could prevent the coupler from fully engaging and allowing gas to enter the liquid flow
	Beer foaming at faucet due to clogged vent hole(s)	Disassemble and clean faucet, or call line cleaning service
No beer at faucet	Empty CO_2 source, N_2 source, or mixed gas bottle	Replace with appropriate full gas bottle; refill bulk CO_2 or N_2 tank; check nitrogen generator
	Regulator shut-off valve closed	Open shut-off valve
	Gas bottle or bulk tank main valve turned off	Turn on gas bottle or tank main valve
	Keg empty	Replace with full keg
	Coupler not engaged	Tap keg properly and engage coupler
	Check ball in coupler one-way valve stuck	Free check ball
	Line/faucet obstructed	Clear line/faucet of obstruction by cleaning; if frozen, allow lines to thaw
	FOB needs reset	Reset FOB
	Pneumatic beer pump(s) failure	Check gas supply to pump(s); check pump diverter setting

Note: A glycol system is designed to maintain liquid beer temperature from the cooler to the dispensing point.

TABLE 8.4. COMMON CAUSES OF OFF-FLAVORS IN BEER

Off-Flavor	Off-Flavor Description	Bacteria	Likely Causes	How to Prevent and Resolve
Diacetyl	Buttery, buttered popcorn, butterscotch, or caramel; can have a slick or milky mouthfeel at high levels	Anaerobic bacteria: *Pediococcus* (most likely), *Lactobacillus* (less likely)	Diacetyl is the most common off-flavor associated with dirty draught systems. *Pediococcus* and *Lactobacillus* arise due to unhygienic conditions in draught beer systems. These bacteria are most likely to develop when: • the cleaning frequency extends beyond a two-week cycle • an electric recirculating line-cleaning pump is not regularly used • associated draught system equipment is not properly disassembled, serviced, and hand-cleaned at the recommended intervals • improper chemicals or low chemical concentrations are used • beer lines are older than their recommended age • kegs in series are not completely emptied on a weekly basis • ineffective line cleaning procedures are used	Completely removing a bacterial infection from a beer line can be very difficult, if not impossible. Even after cleaning, these bacteria may remain in the beer line and keg at initially undetectable levels. However, in a short time, these anaerobic bacteria will resurface as an overpowering infection. The goal is to completely rid the system of any traces of bacteria so the off-flavors never return. Prior to cleaning, begin by replacing infected hardware and beer lines wherever possible, and always replace any kegs that have been tapped into an infected system. Follow the step-by-step electric recirculating pump cleaning procedures in chapter 7, rotating between caustic and acid cycles to maximize your chances of removal
Lactic acid	Sour, sour milk; acidic (note that the bacterial load would have to be very large to pick up the acidic flavor)	Anaerobic bacteria: *Lactobacillus* (most likely), *Pediococcus* (less likely)		
Acetic acid	Sour, vinegar	Aerobic bacteria *Acetobacter*	*Acetobacter* growth usually begins in or on dirty drains, spill trays, bar tops, or used bar rags and will eventually spread to the beer dispensing faucets. Serving staff submerging a faucet into a beer will increase the growth rate of these bacteria. The leading cause of *Acetobacter* infection comes from faucets not being completely disassembled and hand-detailed on a two-week cycle.	Serving staff should be thoroughly trained on proper serving techniques (see chapter 6). Beer faucets should be completely disassembled and hand-detailed using caustic chemicals every two weeks. Stainless steel is the best material for preventing bacterial buildup on faucets
Oxidation	Papery, cardboard, fruity, bready, vinous, vegetal These are only a few descriptors. Oxidation is a very broad term and different ingredients will take on different oxidative properties	Not applicable. Oxidation in beer is a reaction that occurs when a beer is exposed to oxygen	Oxidation occurs due to time, temperature, or direct exposure to oxygen. All beers have an expiration date. This is the date by which point a brewery feels the beer has taken on significant oxidative properties, and that the beer no longer represents the brewery-intended flavor. A beer's expiration date can easily be shortened by exposure to warm temperatures. Draught beer should be kept cold (below 50°F) at all times to maximize its freshness. The longer a beer is kept warm and/or the higher the temperature, the faster the beer will oxidize. If a beer ever rises above 80°F, for any amount of time, the beer is likely ruined. In draught beers, oxidation can happen with the use of an air compressor (chapter 1). If an air compressor is used to dispense draught beer, oxygen will be forced into the keg and oxidize a beer within 24 hours. Porous tubing material will allow oxygen to leach through to the beer, especially if the beer sits in the line for extended lengths of time between pours	Take note of brewery recommended best-by and consume-by dates and temperature specifications. Monitor conditions to ensure your beer stays within brewery recommended guidelines. Ensure any kegs in series have been completely emptied (series kegs should be completely emptied and replaced once per week). Never use compressed air in direct contact with draught beer. Use barrier and stainless steel tubing whenever possible (see chapter 4)