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Specifications*

ENGINE AND DRIVE	COUGAR	PANTERA	EL TIGRE 5000	CHEETAH F/C	CHEETAH L/C	EL TIGRE 6000
Engine Model	AM50A3	AH44L4	AH44L4	AM50A3	AA53L2	AA53L2
Displacement cc (cu in.)	500 (30.5)	435 (26.6)	435 (26.6)	500 (30.5)	529 (32.3)	529 (32.3)
Bore x Stroke mm (in.)	70 x 65 (2.756 x 2.559)	68 x 60 (2.679 x 2.364)	68 x 60 (2.679 x 2.364)	70 x 65 (2.756 x 2.559)	72 x 65 (2.835 x 2.559)	72 x 65 (2.835 x 2.559)
Compression Ratio	6.4:1	6.8:1	6.8:1	6.4:1	6.6:1	6.6:1
Piston-Ring End Gap Range	mm (in.)	0.20-0.83 (0.008-0.033)	0.20-0.83 (0.008-0.033)	0.20-0.83 (0.008-0.033)	0.20-0.83 (0.008-0.033)	0.20-0.83 (0.008-0.033)
Piston Skirt/Cylinder Clearance Range	mm (in.)	0.084-0.15 (0.0033-0.006)	0.076-0.15 (0.0030-0.006)	0.076-0.15 (0.0030-0.006)	0.113-0.15 (0.0044-0.006)	0.113-0.15 (0.0044-0.006)
Piston Pin Diameter Range	mm (in.)	17.995-18.000 (0.7085-0.7087)	17.995-18.000 (0.7085-0.7087)	17.995-18.000 (0.7085-0.7087)	17.995-18.000 (0.7085-0.7087)	17.995-18.000 (0.7085-0.7087)
Piston - Pin Bore Diameter Range	mm (in.)	17.998-18.006 (0.7086-0.7089)	17.998-18.006 (0.7086-0.7089)	17.998-18.006 (0.7086-0.7089)	18.002-18.010 (0.7087-0.7091)	18.002-18.010 (0.7087-0.7091)
Connecting-Rod Small End Diameter Range	mm (in.)	23.00-23.01 (0.9056-0.9059)	23.00-23.01 (0.9056-0.9059)	23.00-23.01 (0.9056-0.9059)	23.00-23.01 (0.9056-0.9059)	23.00-23.01 (0.9056-0.9059)
Crankshaft End Play Range	mm (in.)	0.05-0.10 (0.002-0.004)	0.05-0.10 (0.002-0.004)	0.05-0.10 (0.002-0.004)	0.05-0.10 (0.002-0.004)	0.05-0.10 (0.002-0.004)
Crankshaft Runout (max.) (Total Indicator Reading)	mm (in.)	0.05 (0.002)	0.05 (0.002)	0.05 (0.002)	0.05 (0.002)	0.05 (0.002)
Cylinder Trueness max.	mm (in.)	0.1 (0.0039)	0.1 (0.0039)	0.1 (0.0039)	0.1 (0.0039)	0.1 (0.0039)
Drive Clutch/Driven Pulley Offset**	mm (in.)	34.7 (1.365)	34.7 (1.365)	34.7 (1.365)	34.7 (1.365)	34.7 (1.365)
Center-to-Center Distance	mm (in.)	25.9 (10.2)	25.9 (10.2)	25.9 (10.2)	25.9 (10.2)	25.9 (10.2)
Engagement Speed (RPM)		3600-4000	4200-4800	4200-4800	3600-4000	4000-4600
Peak RPM		6800-7000	8350-8600	8350-8600	6800-7000	8500-8750
Ramp (cam arm)	p/n	0146-294	0646-024	A-3 (44.5 Grams)	0146-294	A-1 (46.5 Grams)
Spring		Green	Green	Yellow/Green	Green	Yellow/Green
Weight	p/n	0146-286	0146-105	N/A	0146-286	N/A
Weight (high altitude)	p/n	0146-123	0146-136	0646-019	0146-123	0646-027
Chain Pitch		68	72	72	68	72
Sprocket Ratio		20/35	24/39	24/39	20/35	24/39
Lighting Coil Output @ 3000 RPM		12V/150W	12V/150W	12V/150W	12V/150W	12V/120W
Ignition Type		CDI/NCI	CDI/NCI	CDI/NCI	CDI/NCI	CDI/NCI
Spark Plug		NGKBR9ES	NGKBR9ES	NGKBR9ES	NGKBR9ES	NGKBR10EV
Spark-Plug Gap	mm (in.)	0.7 (0.028)	0.7 (0.028)	0.7 (0.028)	0.7 (0.028)	0.7 (0.028)
Brake Type	Mechanical Caliper Disc w/Parking Brake					
Track Width	cm (in.)	40.5 (16)	40.5 (16)	40.5 (16)	40.5 (16)	40.5 (16)
Overall Track Length	cm (in.)	307 (121)	307 (121)	307 (121)	396 (156)	307 (121)
Track Length On Ground	cm (in.)	76.2 (30)	76.2 (30)	76.2 (30)	76.2 (30)	76.2 (30)

Fig. 3-2



B340

3. Remove the brass choke-cable housing from the carburetor. Account for a washer.

Fig. 3-3



B341

4. Disconnect the fuel hose from the carburetor inlet fitting.
5. Loosen the carburetor-flange clamp; then remove carburetor.

Fig. 3-4



B342

NOTE: Slide the carburetor into the boot until free of the flange; then remove carburetor.

Disassembling Carburetor

NOTE: Procedures designated "A" are for the Cougar, Cheetah F/C, El Tigre 5000, and Pantera; procedures designated "B" are for the El Tigre 6000 and Cheetah L/C.

1. A. Remove the four screws and lock washers securing the float chamber; then remove the float chamber and gasket.
B. Remove the four screws and lock washers securing the float chamber; then remove the float chamber and gasket. Remove the vent hoses. Account for the hose plates.

Fig. 3-5



B343

2. Remove the caps from the float towers; then remove the floats. Remove the drain plug and washer (O-ring on the Cougar, Cheetah F/C, El Tigre 5000, and Pantera).

Fig. 3-6



B344

NOTE: The floats should be removed only if replacement is necessary.

CAUTION

DO NOT overtighten the pilot air screws when seating; damage will result.

10. Rotate each pilot air screw counterclockwise $1\frac{1}{2}$ turns from the seated position.

NOTE: Synchronize the oil-injection system before starting the snowmobile.

11. Install the air-intake silencer boots.
12. With the snowmobile on a shielded safety stand, start the snowmobile engine and thoroughly warm up. "Fine tune" the throttle stop screws and the pilot air screws until the engine idles smoothly at the desired rpm (2000-2500 rpm is recommended).

NOTE: If the engine does not start after the carburetors have been adjusted, repeat steps 4 and 7 because the throttle/ignition monitor switch may not be correctly tensioned. If all throttle-cable slack is not taken up, the monitor switch will prevent the ignition system from firing the spark plugs.

WARNING

DO NOT operate the snowmobile when any component in the throttle system is damaged, frayed, kinked, worn, or improperly adjusted. If the snowmobile is operated when the throttle system is not functioning properly, personal injury could result.

Removing Oil-Injection Pump

1. Remove both carburetors.
2. Disconnect the oil-supply hose from the pump and plug to prevent oil drainage.
3. Remove the two bolts, lock washers, and washers securing oil-injection pump and retainer to the crankcase.

Fig. 3-36



4. Remove hoses from the insulator blocks or from the cylinders (depending upon model).
5. Disconnect the oil-injection adjustment cable.
6. Remove the oil-injection pump and retainer. Account for two gaskets and discard them.

Installing Oil-Injection Pump

NOTE: When use of a silicone sealer is indicated, use either RTV Silicone Sealant or Three Bond Sealant.

1. Apply silicone sealer to both sides of the retainer gasket; then place gasket and retainer into position on the crankcase.
2. Apply silicone sealer to the oil-injection pump gasket; then place gasket and pump into position making sure the oil-injection pump gear is correctly aligned with the oil-injection pump drive gear.

CAUTION

Be sure the gear is properly aligned with the slot of the oil-injection pump shaft.

3. Secure pump with two bolts, lock washers, and washers. Tighten bolts to 0.7 kg-m (5 ft-lb).

Removing

1. Tie a slipknot in the recoil rope below the console and allow the rope to slowly retract against the recoil case.
2. Remove the knot at the handle and remove the handle; then thread rope through the recoil bushing in the console.
3. Remove the four bolts and lock washers securing recoil assembly to the magneto-case cover.

Disassembling

1. Clamp the recoil in a vise.
2. Rotate the recoil roller counterclockwise until the notch of the roller is near the recoil rope guide in the case. Guide the rope into the notch and slowly allow the roller to retract until all recoil spring tension is released.

Fig. 8-1



B522

3. While exerting downward pressure on the drive plate, remove the nut and washer.

Fig. 8-2



B523

4. Slowly release the drive plate and lift the drive plate w/spring clip free of the recoil roller.
5. Remove the spring clip from the drive plate.

Fig. 8-3



B524

6. Remove the pawl; then remove the pawl spring.

Fig. 8-4



B525

7. Carefully lift the recoil free of case making sure the recoil spring does not accidentally disengage from the recoil case.