



RACE TIP #2

2007 440 IQ Race Manual P/N correction and addendum.

- The part number (9920463) on the front cover of the 2007 440 IQ race manual is incorrect. It should read (9920436).
- The pages of the following addendum should be added to, or replaced, in the 2007 440 IQ Race manual.

Race Manual Addendum

440 SPECIFICATIONS 1.2-1.3
TEAM DRIVEN SPRINGS 5.8
STEERING 8.10-8.12
CHAINCASE PAGES FROM PARTS BOOK 8-9



MODEL SPECIFICATIONS

440 IQ

MODEL S07MX4CS

Body

Body Style	IQ
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Engine

Engine type	Liberty
Engine Model	S3321-4444-PF4C
Engine displacement	438
Bore (in/mm)	2.60/66
Stroke (in/mm)	2.52/64
Piston to cylinder clearance (in/mm)	.0045-.0053/.11-.13
Piston ring end gap (in/mm)	.013-.014/.33-.36
Operating RPM±200	8500
Idle RPM	1200
Clutch engagement RPM ±200	5500
Exhaust valve spring	Red/White

Fuel Delivery

Type	TMX-34
Main Jet	290
Pilot Jet	40
Jet Needle/Clip position	6GL67-61/3
Needle Jet	Q8
Throttle gap under cutaway (in/mm)	2.5
Throttle slide cutaway	2.5
Valve seat	1.5
Starter jet	1.5
Pilot air jet	N/A
Fuel screw setting	N/A
Air screw setting	.75
Recommended fuel octane (R+M/2)	110 Octane Minimum

Jetting

Altitude meters (feet)	Temperature Range					
	<-30°F /-34°C	-30°F to -10°F/-34°C to -23°C	-10°F to +10°F/-23°C to -1°C	+10°F to +30°F/-12°C to -1°C	+30°F to +50°F/-1°C to +10°C	>+50°F /+10°C
0-600 (0-2000)	310 #3	300 #3	290 #3	280 #3	270 #2	260 #2
600-1200 (2000-4000)	300 #3	280 #3	270 #3	260 #3	250 #2	240 #2
1200-1800 (4000-6000)	280 #3	270 #3	260 #3	240 #2	230 #2	220 #2
1800-2400 (6000-8000)	260 #3	250 #3	240 #2	230 #2	210 #2	200 #2
2400-3000 (8000-10000)	240 #2	230 #2	220 #2	210 #2	200 #2	190 #2
3000-3700 (10000-12000)	230 #2	210 #2	200 #2	190 #2	180 #2	170 #2

Clutching

Altitude meters (feet)	Drive Clutch (P-85)		Driven Clutch (TEAM)		
	Shift Weight	Clutch Spring	Clutch Spring	Driven Helix	Gearing
0-600 (0-2000)	S-51 H	Almond/Red	160/280	.70/44-46 (66/44-46)	19:45-76
600-1200 (2000-4000)	S-49 H	Almond/Red	160/280	.70/44-46 (66/44-46)	19:45-76
1200-1800 (4000-6000)	S-47 H	Almond/Red	160/280	.70/44-46 (66/44-46)	19:45-76
1800-2400 (6000-8000)	S-45 H	Almond/Red	160/280	.70/44-46 (66/44-46)	19:45-76

Drive clutch bolt torque 50 ft-lb (69 N-m)

Belt

Belt part number	3211114
Belt width (in/cm)	1.412
Belt side angle	26°
Outside diameter (in/cm)	45.20/
Clutch center distance (in/cm)	10.625

Chaincase

Center distance (in/cm)	10.625
Reverse type	N/A

Fluids and Capacities

Fuel (gal/l)	2.75/10.4
Oil (qts/l)	NA
Coolant (qts/l)	4/3.79
Chaincase (oz/ml)	9/266.2
Brake fluid type	DOT 4

Track

Width (in/cm)	14.75/38
Length (in/cm)	121/307
Lug height (in/cm)	1.75/4.45
Manufacturer	Soucy
Track tension sag (in/cm) with 10 lbs/ 4.54kg placed 16 in/40.6cm ahead of rear idler shaft	1.25-1.50/3.17-3.81

Front Suspension

Suspension type	IQ Race
IFS shocks	7043310*
IFS spring rate	150lb/in
IFS Spring installed length (in/cm)	12/30
Front vertical travel (in/cm)	10/25.4
Toe (in/mm)	0-.125 Toe Out
* notes that shock is serviceable	

Rear Suspension

Suspension type	IQ Race
Front track shock (FTS)	7043312*
Nitrogen Pressure	170psi
Rear track shock (RTS)	7043311*
* notes that shock is serviceable	

Torsion Spring

Torsion spring PN (LH/RH)	7043324/7042235
Torsion spring diameter (in/mm)	.359
Torsion spring tail angle	77°
Torsion Spring Rate	12 in-lb/ °

Dimensions

Width (in/cm)	48/122
Length (in/cm)	110/279
Height (in/cm)	45/114
Est dry weight lb/kg	450/204

Electrical

Ignition timing	12° @ 1750
Spark plug gap (in/mm)	.70/027
Spark plug	RN 57 YCC
Voltage regulator/output	170w
CDI marking	4011413
Flywheel marking	4010629

CLUTCHING

Team Driven Springs

TEAM Driven Springs

PART NUMBER	COLOR	WIRE DIAMETER	LOAD @ 2.2"(lbs)	LOAD @ 1.1"(lbs)	Rate (Lbs. per inch)
7042181	Black/Yellow	.200	145	208	56
7043058	Red/Black	.218	140	240	90
7043059	Red/Green	.218	120	220	90
7042066	Green/Black	.200	135	198	56
7043061	Red/Silver	.207	125	175	45
7043062	Red/Yellow	.207	100	150	45
7043057	Red/Blue	.218	140	200	54
7043063	Black/Red	.218	155	222	65
7043064	Blue/Black	.218	123	203	73
7043060	Red/White	.218	100	200	91
7043069	Red/Pink	.235	140	260	110
7043252	Black/Silver	.235	160	280	109
7043063	Black	.218	155	222	65

FRONT SUSPENSION & STEERING

STEERING

INSPECTION

Prior to performing steering alignment, inspect all steering and suspension components for wear or damage and replace parts as necessary. Refer to steering assembly exploded views in this chapter for identification of components and torque values of fasteners. While disassembling, make notes of what direction a bolt goes through a part, what type of nut is used in an application, in which direction do the steering arms go on - weld up or weld down, etc.

Some of the fasteners used in the IFS are special and cannot be purchased at a hardware store. Always use genuine Polaris parts and hardware when replacing front end components. Review steering adjustment guidelines before making adjustments.

The following components must be inspected at this time.

- Tie rods and tie rod ends
- Radius rods and radius rod ends
- Torsion bar and bushings / linkage (where applicable)
- Handlebars and steering post assembly
- Spindles and bushings
- Trailing arms and bushings
- Skis and skags
- Pitman arms / Idler arms
- Steering arms
- A-arms and bushings
- Shock absorbers, shock mounts, springs
- All related fasteners - check torque. Refer to steering exploded views at the beginning of this section.
- Grease all fittings.

Always follow rod end engagement guidelines. Maximum setup width must be checked whenever front suspension components are adjusted or replaced.

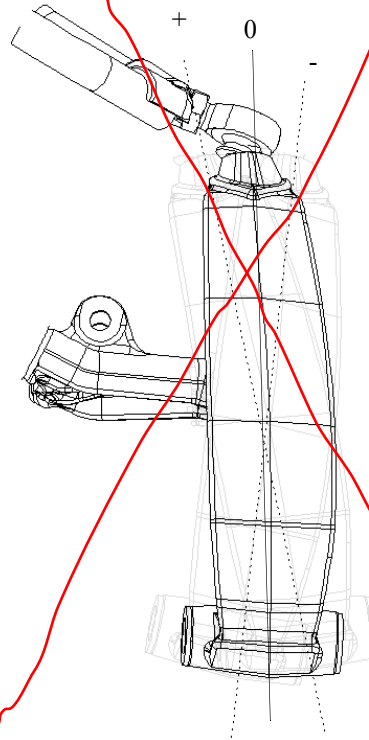
Alignment Bar Specifications

- DIAMETER: .623"-.625" (15.824-15.875mm)
- LENGTH: 45" (114.3cm)
- MATERIAL: C-1018

Camber Definition

The following definitions of camber use automotive terminology to describe positive and negative positions.

- 0 = Neutral camber. The spindle is 90° (perpendicular) to the ground.
- + = Positive camber. The bottom of the spindle is canted inward toward the chassis.
- - = Negative camber. Spindle bottom is canted outward from the chassis.



Rod End

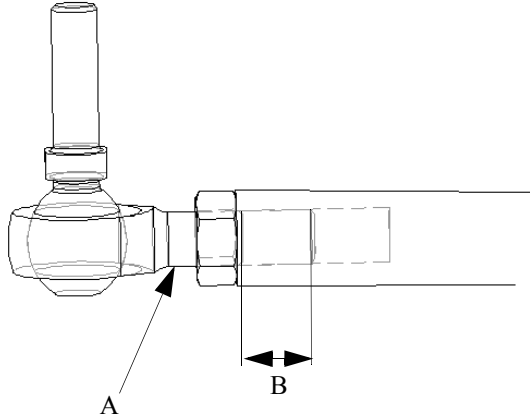
Rod ends must be parallel to their respective mounting surface after tightening jam nut. Hold the rod end and tighten jam nut. If possible, support the edge of the rod end to keep it from rotating out of position until jam nut is tight. When rod ends are properly tightened, the rod should rotate freely approximately 1/8 turn.

Rod End Engagement

Rod ends must engage the rod a minimum of 2x the thread diameter when adjustment is complete.

FRONT SUSPENSION & STEERING

Example: $.4375''$ (11mm) rod end (A) X 2 = minimum thread engagement (B) $.875''$ (22mm).



FRONT SUSPENSION MEASURING

Maximum width and camber measurements are to be taken with the front end elevated and shocks at full extension.

Maximum Width

Width is measured from the center of the spindles.

Toe Alignment

Toe alignment is measured at ride height. This means that the machine is on the ground and resting at normal ride height, not full rebound. Measure at a point 10'' (2.54cm) forward of the ski mount bolt and 10'' (2.54cm) behind the ski mount bolt, preferably on the center line of the carbide skags.

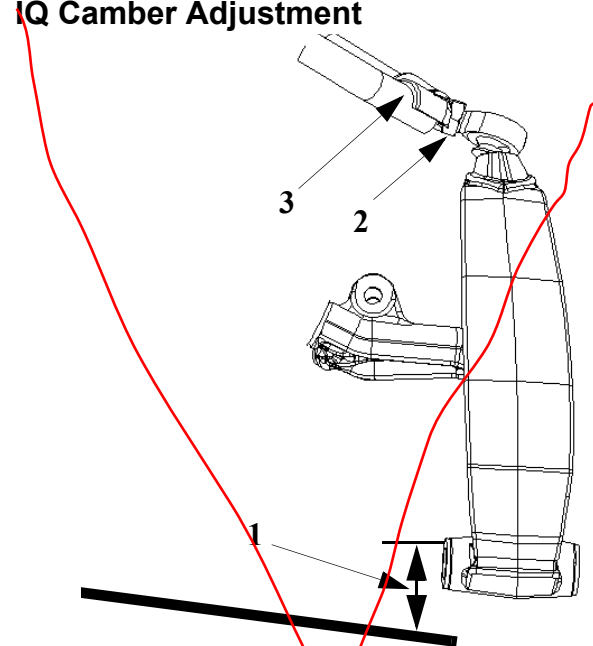
Camber

Camber measurement is taken from the top of the alignment bar to the top of the ski mount hole in the spindle with the bushing removed.

ALIGNMENT ADJUSTMENTS

Alignment adjustments should be performed in this order.

IQ Camber Adjustment



WARNING

After camber adjustment is complete, be sure to measure set up width outlined in this chapter and compare to model specifications listed. Do not attempt to set suspension wider than the specified maximum set up width. If set up width exceeds maximum, adjust upper and lower radius rods equally to maintain camber adjustment.

1. Raise the front of the machine so that the skis are off the floor 3'' (7.62cm). The shocks should be at full extension
2. Remove the skis.
3. Determine which spindle requires the greatest amount of correction by installing the alignment bar through one spindle to the other spindle. Measure the distance (1) from the top of the alignment bar to the top of the ski mount hole with the bushing(s) removed. Record measurement.
4. Remove the alignment bar and install it to measure the opposite side. Measure the distance (1) from the top of the alignment bar to the top of the ski mount hole with the bushing(s) removed. Record measurement
5. To adjust the camber, unlock the lock nut (2) and adjust the camber with the adjuster nut (3) until alignment bar measurement is within the specified range for each spindle.
6. Once the specification is achieved, tighten all jam nut(s) and torque them 32-37 ft-lb (142-165 N-m).
7. Re-check the set up width and compare to specification.

FRONT SUSPENSION & STEERING

Handlebar Centering

1. Raise the front of the machine off the floor so that the spindles are off the floor 3”(7.62cm).
2. Insert the alignment bar through both ski bolt holes in each spindles.
3. Adjust the Toe as outlined below, until handlebar is centered.

Toe Adjustment

Toe is adjusted with the shocks and skis installed. Track alignment must be correct before starting this process. See “TRACK ALIGNMENT” on page 3.20.

Toe alignment is measured at ride height.

1. Lift front of the machine off the floor rock the front end up and down and then set it down gently. This will set the unit at ride height.
2. Measure and make a mark 10” (2.54cm) forward of the ski mount bolt and 10” (2.54cm) behind the ski mount bolt, preferably on the center line of the carbide skags.
3. Place a straight edge along the one side of the track. Make sure that the straight edge is touching along the length of the track.
4. Record the measurements from the edge of the straight edge to the forward ski mark and the rearward ski mark.
5. Adjust the tie rod so that both measurements are the same.
6. Place the straight edge on the opposite side of the track and measure the opposite ski marks.
7. Adjust the tie rod so that both measurements are the same.
8. Verify that the ski center distances are within specification from the forward marks and the rearward marks.

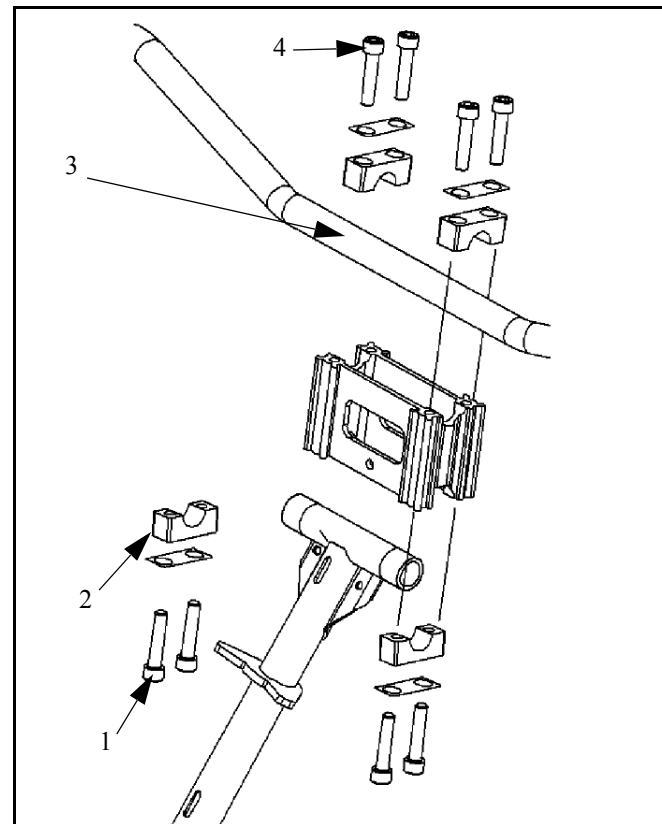
HANDLEBAR

Handlebar Position

Handlebar position and handlebar angle can be adjusted to rider preference. After making handlebar adjustments, check to make sure wires are not pinched or kinked. Make sure the handlebars, brake lever and throttle lever operate smoothly and do not hit the gas tank, windshield or any other part of the vehicle when the handlebars are turned fully to the left or right. When adjustments are complete, torque the front adjuster block bolts first, then torque the rear bolts. Torque the bolts to 11-13 ft. lbs. (15-18 Nm).

1. Loosen the four bolts on the bottom (1) of the adjuster block (2).

NOTE: If necessary, pry the blocks apart with a screwdriver.



2. Adjust the handlebar (3) to the desired position.
3. Tighten the bolts to specification below.



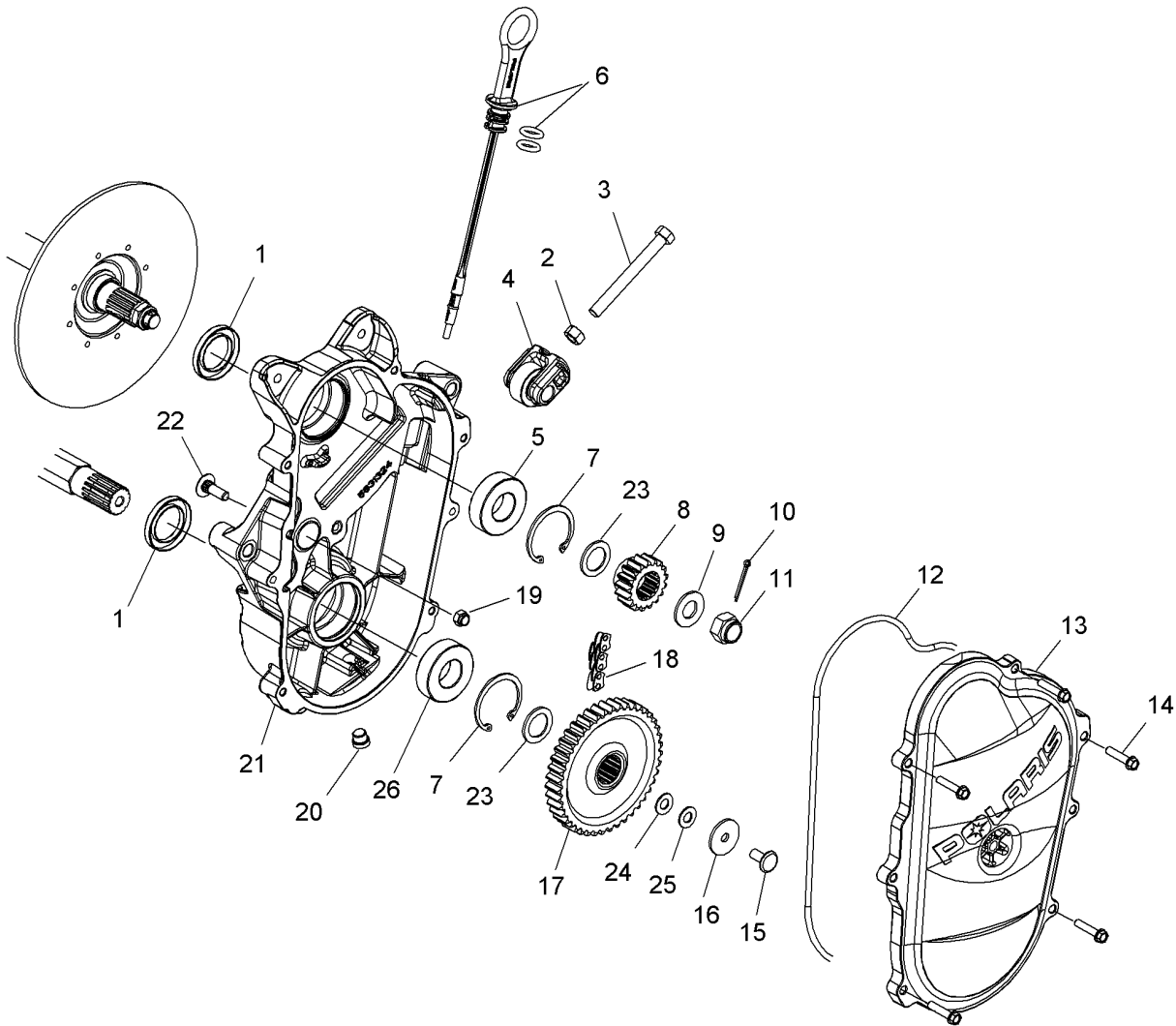
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Riser Fasteners: 15-17 ft-lb (20-23 N-m)

CHAINCASE

Applies to S07MX4CS/CE [49SNOWCHAINCASE07440IQ]

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CHAINCASE**Applies to S07MX4CS/CE [49SNOWCHAINCASE07440IQ]**

Ref.	Part No.	Qty	Part Description	Notes
1.	3610030	2	Seal, Oil	
2.	7542404	1	Nut	
3.	7517227	1	Screw	
4.	1332266	1	Asm., Tightener, Sliding	
5.	3514309	2	Bearing, Ball	
6.	1332143	1	Asm., Dipstick	
6.	5410675	1	O-Ring	
7.	7718406	2	Ring, Retaining	
8.	3221086	1	Sprocket, 19T, 3/4W	
9.	7571620	1	Washer, Spring	
10.	7661203	1	Pin, Cotter	
11.	7547202	1	Nut	
12.	5411497	1	Gasket, O-Ring	
13.	5631354	1	Cover, Chaincase	
14.	7512242	5	Screw	
15.	3233252	1	Screw	
16.	3234462	1	Washer	
17.	3222151	1	Sprocket, Slip	
18.	3221108	1	Chain, 76P, 3/4W	
19.	7542451	1	Nut, Nylok	
20.	7052115	1	Plug	
21.	5134260	1	Chaincase	
22.	7515477	1	Screw, Carriage	
23.	7556509	2	Bushing	
24.	7555957	1	Washer	
25.	7555734	1	Washer, Flat	
26.	3514462	1	Bearing, 205, Self Aligning	

Slip Sprocket Installation

