

10. TEARDOWN PROCEDURES

As specified within the NCCC Sanctioned Competition Program, one of two methods of a teardown inspection of a car will be required.

1. It is a Group 1-Street, Group 1 or Group 2 car that has set a Class Drag Record at a Record Drag Race event.
2. The car (entrant) has been protested by another eligible competitor.

10.1. PEOPLE ALLOWED AT TEARDOWN

1. The only people allowed at a teardown will be vehicle owner(s), Driver, Event Chairperson/teardown officials, any RCD's in attendance and anyone requested by the owner to assist in teardown.
2. Designated teardown official(s) shall be knowledgeable in teardown procedures, and equipment. Chevrolet and Corvette parts and Group/Class Regulations.
3. Any protestors MUST remain away from the vehicle during teardown.

10.2. BASIC TEARDOWN EQUIPMENT LIST

1. Micrometers required:

1 - 0 to 1" micrometer	1 - Inside micrometer set or
1 - 1 to 2" micrometer	1 - Dial Bore Indicator
1 - 3 to 4" micrometer	1 - Depth micrometer with 4" base
1 - 4 to 5" micrometer	1 - Set micrometer standards
2. Equipment & supplies required for checking cylinder heads:
 - 1 - "C.C." Burette with stand & glass plate with hole (100 cc minimum)
 - 1 - Tube of light grease
 - 1 - Quart of alcohol
 - 1 - Valve spring compressor
3. Equipment required for camshaft check:
 - 1 - Degree wheel
 - 1 - Top Dead Center stop
 - 1 - Dial indicator with magnetic base (1" travel min.)
 - 1 ea. - Solid lifter and solid roller lifter for hydraulic roller camshafts
 - 1 - Harmonic balancer puller (only required for camshaft removal if protested)
4. Equipment required for the "Whistler" teardown.
 - 1 - Whistler Static engine compression ratio meter.
 - 1 - Cylinder Volume Tester.
 - 1 - Harmonic balancer tape (6" and 8")
 - 1 - Dial indicator w/fixture to work on both aluminum and cast iron heads.
 - 1 - Bore Scope

10.3. PRE-TEARDOWN CHECK

Use Pre-teardown Checklist 10.6. to perform necessary checks prior to teardown.

10.4. TEARDOWN PROCEDURE

Use Protest and Teardown Checklist form 10.7. to record data during teardown.

10.4.1. GROUP 1-STREET & GROUP 1 DISASSEMBLY

1. Remove valve cover:
 - A. Check cylinder head casting number.
 - B. Check rocker arm type & material.
 - C. Check rocker arm stud type.
 - D. Check valve spring retainer and shield if applicable -- type and material.
2. Remove carburetor or fuel injection system:
 - A. Check intake manifold to carburetor/fuel injection system opening.

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3. Remove distributor.
4. Remove intake manifold.
5. Remove exhaust manifold or header. No port matching allowed on following.
 - A. Check exhaust port openings in cylinder head.
 - B. Check exhaust inlet openings in the exhaust manifolds/headers.
 - C. Check exit port openings in the exhaust manifolds/headers.
6. Check camshaft lift.
7. Remove water pump & crankshaft pulleys.
 - A. Bolt degree wheel to harmonic balancer.
 - B. Install wire timing pointer to timing cover bolt.
 - C. Screw Top Dead Center stop into spark plug hole on cylinder to be checked.
 - D. See cam check procedure on PROTEST AND TEARDOWN CHECKLIST 10.6. for remaining details. NOTE: Any additional cam check or cam removal must be accompanied by a \$100.00 protest fee.
8. Remove one (1) cylinder head (official's choice as to which one):
 - A. Check head gasket thickness.
 - B. Remove carbon from combustion chamber and valves.
 - C. Check combustion chamber for being polished or relieved.
NOTE: Remaining checks should be done at approximately room temperature. Use whatever method is deemed necessary to accomplish this. Water or ice works well for a quick cool-down and normally hurts nothing.
 - D. Install glass plate with light grease over combustion chamber to be checked.
 1. Install spark plug.
 2. Fill burette to "0" with approximately 50-50 mix of alcohol and water.
 3. Fill combustion chamber with the above mixture from the burette, making sure there are no air bubbles or pockets remaining in combustion chamber.
 4. Note on burette the total volume of mixture required to fill chamber to hole in glass plate.
 - E. Check valve spring installed height--valve closed. Tolerance + or - 0.030 in.
 - F. Remove one (1) intake and one (1) exhaust valve from head.
 1. Check valve stem diameter.
 2. Check valve head diameter.
 3. Check valve pockets for porting or polishing.
9. Check piston design -- dome or dish and height of dome or depth of dish.
10. Measure bore and stroke.
11. Deck clearance.
 - A. Using dial indicator on top of piston, find Top Dead Center.
 - B. Using depth micrometer, check deck clearance.
 1. On flat pistons, check at center of piston.
 2. On dish pistons, check on four (4) outer sides of piston and average readings or check at center of dish and deduct dish depth.
 3. On dome pistons, check on four (4) outer sides of piston and average readings or check at center of dome and deduct dome height.
12. Engine may now be re-assembled.

10.4.2. GROUP 2 DISASSEMBLY

Use Group I-Street and Group I disassembly procedure 10.4.1. except DO NOT CHECK the following items except for limitations on item 2:

1. Under Item # 1 line d. -- valve spring retainer and shield -- type and material.
2. Under Item # 5 line a. -- Exhaust port matching in cylinder head allowed only to a depth of 1/4".
3. Under Item # 5 line b. -- exhaust inlet openings in exhaust manifolds/headers.

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4. Under Item # 5 line c. -- exit port openings in exhaust manifolds/headers.
5. Under Item # 8 line e. -- valve spring installed height--valve closed.

10.4.3. GROUP 1 AND GROUP 2 DISASSEMBLY USING WHISTLER METHOD OF TEARDOWN:

1. Remove Valve Cover.
 - A. Check cylinder head casting number
 - B. Check rocker arm type and material.
 - C. Check rocker arm stud type.
 - D. Check valve spring retainer and shield if applicable – type and material.
2. Remove all spark plugs.
3. With dial indicator mounted to cylinder head, rotate engine with starter, with oil pressure check valve lift on one intake and one exhaust valve.
4. Install volume meter. With starter assist, rotate engine. Read meter.
5. Use WHISTLER procedures to check compression.
6. Using Bora scope, insert probe into convenient spark plug hole. Examine piston configuration and valve diameter.

10.5. WHISTLER METHOD OF TEARDOWN

1. Follow the instructions supplied with the Whistler Compression tester, and cylinder volume tester.
2. When applicable, install degree tape on harmonic balance and check opening of exhaust and intake valves.
3. Use Bore Scope and look in cylinder head plug openings, check valve size and piston configuration.
4. Install head fixture on cylinder head, rotate engine with starter, and with oil

NOTES

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10.6. PRE-TEARDOWN CHECKLIST SHEET

Event #: _____ Class: _____ Car Number(s): _____

Name(s): _____ NCCC #(s): _____

10.6.1. GROUP 1-S AND GROUP 1

THE FOLLOWING IS TO BE CHECKED ON GROUP I-S AND GROUP I CARS:

Tires/Brand: _____ Size:(F) _____ (R) _____ Type: _____

DOT #: _____ Visible Tread Pattern full circle of tire: _____

Spare tire/wheel - correct type: _____ (Not required on cars originally EMT equipped)

Rear Axle Ratio: _____ Computer(s)' Prom (Calibration): _____

Air Filter Ass'y: Stock: _____ After Market: _____ Other: _____

(See Class Regulations for specific air filter requirements)

Intake Manifold: Type: _____ Material: _____ Casting #: _____

Carburetor/F.I. - Type: _____ Number: _____ Ext. Linkage OK: _____

Distributor:- Type: _____ Number: _____ Design: _____

Coil & Wires - Type and Design: _____

Exhaust Manifolds - Type: _____ Material: _____

Exhaust Pipe - O.D. @ Engine: _____ O.D. Approx. 18" DOWN: _____

Side Pipes - Type: _____ Covers: _____

All Grp 1-S & 1984-up Grp 1 - Stock catalytic converter(s) & pre-converter(s) functional: _____

Fan Design - Steel (straight) Type: _____ Clutch Type: _____ Aluminum: _____

Fiberglass: _____ Other: _____

Harmonic Balancer - Diameter: _____ Thickness: _____

Shocks - Type: _____ Manual Adjust? _____ Computer Adjust? _____

Body - Flares: _____ Non-Factory Spoiler _____ Other: _____

At High Speed Events: Fire Extinguisher Mounted : Yes: _____ No: _____

Roll Bar or Cage on Roadster: Yes: _____ No: _____

10.6.2. GROUP 2

THE FOLLOWING IS TO BE CHECKED ON GROUP II CARS:

Tires/Brand: _____ Type: _____ DOT #(yes or no): _____

Visible Tread Pattern full circle of tire: _____ Wheel diameter: _____

Air Filter Assembly - Yes: _____ No: _____

Fire Extinguisher Mounted - Yes: _____ No: _____

Spark Plugs to Cylinder Head entry angle - Straight: _____ Angle: _____

Water Pump Material - Cast Iron: _____ Aluminum: _____

Carburetor (C and D Class) - Type: _____ #: _____ CFM: _____

Intake Manifold - Type: _____ Material: _____ Casting #: _____

At High Speed Events: Roll Bar or Cage on Roadster: _____

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10.7. PROTEST AND TEARDOWN CHECK LIST

Event #: _____ Class: _____ Car Number(s): _____

Name(s): _____ NCCC #(s) : _____

Year: _____ Style: _____ Trans. - Make & Type: _____

HP: _____ CI: _____ Axle Ratio: _____

Options: _____

Bore & Stroke: _____

Compression Ratio claimed: _____

Compression Ratio -- true: _____

Cylinder Head Volume: _____

Head Gasket Compressed Thickness: _____

Deck Clearance: _____

PISTONS:

Type (Flat, Dished, Domed, Etc.): _____

Dish Displacement (c.c.): _____

Height of Dome or Dish Depth: _____

CYLINDER HEAD:

Casting # & Material: _____

Rocker Stud Type: _____

Intake & Exhaust Ports: _____

EXHAUST

(Stock, Matched, Ported)

Combustion Chamber & Valve Pockets: _____

(Stock, relieved, polished)

INDUCTION:

Type & Make: _____

Part Number: _____

Intake Manifold Casting #: _____

Intake Manifold Material: _____

Intake to Head & Carb./F.I. Ports: _____

(Stock, Matched, Ported)

EXHAUST (Group 1-Street & Group 1):

Manifold openings: _____

(Stock, Matched, Etc.)

VERIFIED BY:

Event Chairperson: _____

RCD: _____

Camshaft casting #: _____

Rocker Arm - Ratio/Matl.: _____

Lifter Type: _____

Push Rod Type: _____

NOTE: Timing, duration & lift specs are those found at the valve when clearances are set as specified in spec. sheets for engine claimed. On Hydraulic camshafts, specs should be checked at valve using a solid lifter. Opening and closing specifications are for determining total duration specs only (opening and closing readings do not have to be exactly as stated in specs.)

TIMING: INTAKE

Check Clearance: _____

Opens: _____

Closes: _____

Overlap: _____

Duration: _____

Lift : _____

VALVES:

Head Diameter: _____

Valve Stem Diameter: _____

Angle of Seat & Face: _____

(Following items N/A for Group II)

Retainer & Shield Type: _____

Springs installed height: _____

Entrant: _____

VP - Competition: _____