

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4460285

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	GRANT OF SECURITY INTEREST IN PATENT RIGHTS

CONVEYING PARTY DATA

Name	Execution Date
TENNECO AUTOMOTIVE OPERATING COMPANY INC.	05/12/2017

RECEIVING PARTY DATA

Name:	JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT
Street Address:	10 S. DEARBORN ST., 7TH FLOOR
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60603

PROPERTY NUMBERS Total: 303

Property Type	Number
Application Number:	14952058
Application Number:	14952047
PCT Number:	US2015062668
PCT Number:	US2015062669
Application Number:	15006363
PCT Number:	US2016014851
Patent Number:	9605726
PCT Number:	US2016016296
Application Number:	15017056
PCT Number:	US2016016812
Patent Number:	6941746
Patent Number:	6865881
Patent Number:	7467749
Patent Number:	8047452
Patent Number:	7861520
Patent Number:	8109077
Patent Number:	8998114
Patent Number:	8740113
Patent Number:	8973895
Application Number:	14641820

PATENT

Property Type	Number
Application Number:	14642819
PCT Number:	EP2014073627
Patent Number:	6321888
Patent Number:	6352145
Patent Number:	5992585
Patent Number:	6290035
Patent Number:	7438164
Patent Number:	6464053
Patent Number:	6220409
Patent Number:	6371264
Patent Number:	6148969
Patent Number:	6382373
Patent Number:	6364075
Patent Number:	6354614
Patent Number:	6267197
Patent Number:	7252181
Patent Number:	6672436
Patent Number:	6460664
Patent Number:	6644445
Patent Number:	7004293
Patent Number:	7070028
Patent Number:	6443436
Patent Number:	8210330
Patent Number:	6581733
Patent Number:	6793049
Patent Number:	6959796
Patent Number:	6918473
Patent Number:	6776269
Patent Number:	6964325
Patent Number:	6978871
Patent Number:	7070029
Application Number:	11879727
Application Number:	12807511
Patent Number:	7011193
Patent Number:	7032727
Patent Number:	7156213
Patent Number:	7314224
Patent Number:	7216747

Property Type	Number
Patent Number:	7703586
Patent Number:	7751959
Patent Number:	7743896
Patent Number:	7926632
Patent Number:	8256586
Patent Number:	8511444
Patent Number:	7896142
Patent Number:	7950506
Patent Number:	8083039
Patent Number:	7743897
Patent Number:	8794407
Patent Number:	7988166
Patent Number:	8196942
Patent Number:	8069964
Patent Number:	8997953
Patent Number:	8714320
Patent Number:	8590678
Patent Number:	8668061
Patent Number:	8511446
Patent Number:	8297418
Patent Number:	8701846
Patent Number:	8511447
Patent Number:	9033121
Patent Number:	9285011
Patent Number:	8616351
Application Number:	14849092
Application Number:	15450885
Patent Number:	9150077
Patent Number:	8371562
Patent Number:	8627933
Patent Number:	8196941
Patent Number:	8408569
Patent Number:	8434772
Patent Number:	8739948
Patent Number:	9169890
Patent Number:	8966889
Application Number:	14616112
Patent Number:	9067471

Property Type	Number
Patent Number:	9481221
Patent Number:	8696004
Patent Number:	9080629
Application Number:	13487334
Patent Number:	9163691
Application Number:	14208410
Patent Number:	8820064
Patent Number:	9074651
Patent Number:	9004470
Patent Number:	9217483
Application Number:	14947222
Patent Number:	9404551
Patent Number:	9272598
Patent Number:	9108484
Patent Number:	9586456
Patent Number:	9080634
Patent Number:	9500255
Patent Number:	9239092
Application Number:	14878397
Patent Number:	9441699
Patent Number:	9533538
Patent Number:	9399383
Application Number:	15218501
Application Number:	14303943
Application Number:	14192173
Application Number:	14738332
Application Number:	14799179
PCT Number:	US2015040591
Application Number:	14806776
Patent Number:	9441700
PCT Number:	US2015038413
Patent Number:	9222539
PCT Number:	US2015038416
Patent Number:	9500251
PCT Number:	US2015062170
Application Number:	14991306
PCT Number:	US2016012677
Patent Number:	9579944

Property Type	Number
PCT Number:	US2015049324
Patent Number:	9587703
Application Number:	15402813
Application Number:	15046566
Application Number:	15434435
Application Number:	15440059
PCT Number:	US2017019330
Application Number:	15077214
Application Number:	15189574
Application Number:	62403256
Application Number:	15380468
Application Number:	15464735
Patent Number:	6594365
Patent Number:	6158546
Patent Number:	6446322
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Patent Number:	7063134
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Patent Number:	8215103
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Patent Number:	8468813
Patent Number:	7897117
Patent Number:	7845166
Patent Number:	7845465
Patent Number:	7980061
Patent Number:	8776504
Patent Number:	8191572
Patent Number:	7896130
Patent Number:	8381401
Patent Number:	8353153
Patent Number:	8281661
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Patent Number:	8464516
Patent Number:	8656708
Patent Number:	9140158
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Property Type	Number
Patent Number:	8609030
Patent Number:	8784742
Patent Number:	9005535
Patent Number:	8776509
Application Number:	14326739
Patent Number:	8561395
Application Number:	14823161
Patent Number:	9151198
Patent Number:	8635854
Patent Number:	8690115
Patent Number:	8677738
Patent Number:	9347355
Application Number:	14956727
Application Number:	15148179
Application Number:	13232195
Patent Number:	8721977
Patent Number:	9140174
Patent Number:	9163549
Application Number:	13529008
Patent Number:	8701389
Patent Number:	9133743
Application Number:	13706461
Patent Number:	8910884
Application Number:	14564450
Patent Number:	8978364
Application Number:	14619543
Patent Number:	9010096
Patent Number:	8939638
Application Number:	14799081
Patent Number:	9095827
Patent Number:	9440204
Patent Number:	8998116
Application Number:	13664775
Patent Number:	9057316
Patent Number:	9291086
Patent Number:	9080487
Patent Number:	9222388
Application Number:	14944800

Property Type	Number
Patent Number:	9518496
Patent Number:	8657065
Patent Number:	9027331
Patent Number:	8991163
Patent Number:	9027332
Patent Number:	9057303
Application Number:	14732833
Patent Number:	8959902
Patent Number:	8893478
Patent Number:	9103252
Patent Number:	8974740
Application Number:	14764847
Patent Number:	8973355
Patent Number:	9359928
Patent Number:	9387438
Patent Number:	9108157
Patent Number:	9016043
Application Number:	13961989
Application Number:	14512609
Patent Number:	9334775
Application Number:	14782874
Patent Number:	9289724
Patent Number:	9314750
Patent Number:	9291081
Patent Number:	9334781
Patent Number:	9352276
Patent Number:	9364790
Application Number:	14486308
Application Number:	14271788
Patent Number:	9046021
Patent Number:	9371767
Patent Number:	9410464
Patent Number:	9435240
Patent Number:	9121320
Application Number:	14810590
Patent Number:	9221014
Patent Number:	9482131
Application Number:	14445686

Property Type	Number
PCT Number:	US2015042172
Application Number:	14271811
Application Number:	15316956
Application Number:	14597745
PCT Number:	US2015056901
Patent Number:	9546621
Application Number:	15001356
PCT Number:	US2016014275
Application Number:	14699233
Application Number:	15001448
Application Number:	14677012
Application Number:	14931039
PCT Number:	US2016047700
Patent Number:	9534525
PCT Number:	US1634150
Application Number:	14972642
Application Number:	15050504
PCT Number:	US2016019122
Patent Number:	9551257
Application Number:	14818361
Application Number:	14937239
Application Number:	15050521
Application Number:	15238838
Application Number:	15075803
Application Number:	15172357
Application Number:	62333464
Application Number:	15238872
Application Number:	15229180
Application Number:	15229189
Application Number:	15386126
Application Number:	62448425
Application Number:	15480776
Application Number:	15480830
Application Number:	15182697
Application Number:	14085576
Application Number:	14687211
Patent Number:	7386378
Patent Number:	7493995

Property Type	Number
Patent Number:	7913489
Patent Number:	8141353
Patent Number:	8272210
Patent Number:	8397495
Patent Number:	8667681
Patent Number:	8327829
Patent Number:	8869518
Patent Number:	8468810
Patent Number:	8277548
Patent Number:	8375709
Patent Number:	8752290
Patent Number:	8661673
Patent Number:	8505203
Patent Number:	8100315
Patent Number:	9217357
Application Number:	14941961
Patent Number:	8747510

CORRESPONDENCE DATA

Fax Number: (212)455-2502
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.
Phone: (212) 455-2582
Email: ksolomon@stblaw.com
Correspondent Name: LAWRENCE HUANG, ESQ.
Address Line 1: SIMPSON THACHER & BARTLETT LLP
Address Line 2: 425 LEXINGTON AVENUE
Address Line 4: NEW YORK, NEW YORK 10017

ATTORNEY DOCKET NUMBER:	509265/2050
NAME OF SUBMITTER:	LAWRENCE HUANG
SIGNATURE:	/LH/
DATE SIGNED:	06/14/2017

Total Attachments: 24

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GRANT OF
SECURITY INTEREST IN PATENT RIGHTS

This GRANT OF SECURITY INTEREST IN PATENT RIGHTS ("Agreement"), dated as of May 12, 2017 is made by Tenneco Automotive Operating Company Inc., a Delaware corporation formerly known as Tenneco Automotive Inc., with an address at 500 North Field Drive, Lake Forest, IL 60045 (the "Obligor"), in favor of JPMorgan Chase Bank, N.A., a national banking association with an address at 10 S. Dearborn, 7th Floor, Chicago, IL 60603, as Administrative Agent (in such capacity, the "Administrative Agent") for the banks and other financial institutions (the "Lenders") from time to time parties to the Fifth Amended and Restated Credit Agreement, dated as of May 12, 2017 (as amended, supplemented or otherwise modified from time to time, the "Credit Agreement"), among Tenneco Inc., a Delaware corporation (the "Company"), the Obligor, any other Subsidiary Borrowers from time to time parties thereto, the Lenders, Citibank, N.A. and Morgan Stanley MUFG Loan Partners, LLC, as documentation agents, Bank of America, N.A., Barclays Bank PLC and Wells Fargo Bank, N.A., as syndication agents, and the Administrative Agent..

W I T N E S S E T H:

WHEREAS, pursuant to the Credit Agreement, the Lenders have severally made and agreed to make extensions of credit to the Borrowers upon the terms and subject to the conditions set forth therein;

WHEREAS, each Borrower is a member of an affiliated group of companies that includes each other Grantor;

WHEREAS, the Grantors and the Administrative Agent are parties to the Amended and Restated Guarantee and Collateral Agreement, dated as of May 12, 2017 (as amended, supplemented or otherwise modified from time to time, the "Guarantee and Collateral Agreement");

WHEREAS, pursuant to the Guarantee and Collateral Agreement, Obligor pledged and granted to the Administrative Agent for the benefit of the Administrative Agent and the Lenders a continuing security interest in all Intellectual Property, including the Patents, whether now owned or hereafter acquired by the Obligor; and

WHEREAS, pursuant to the foregoing, Obligor has duly authorized the execution, delivery and performance of this Assignment;

NOW, THEREFORE, in consideration of the premises and to induce the Administrative Agent and the Lenders to enter into the Credit Agreement and to induce the Lenders to make their respective extensions of credit to the Borrowers under the Credit Agreement, Obligor agrees, for the benefit of the Administrative Agent and the Lenders, as follows:

SECTION 1. Definitions. Unless otherwise defined herein or the context otherwise requires, terms used in this Agreement, including its preamble and recitals, have the

meanings provided or provided by reference in the Credit Agreement and the Guarantee and Collateral Agreement.

SECTION 2. Grant of Security Interest. Obligor hereby assigns and transfers to the Administrative Agent, and hereby grants to the Administrative Agent, for the ratable benefit of the Lenders and their Affiliates, a security interest in all of the Patents now owned or at any time hereafter acquired by Obligor or in which Obligor now has or at any time in the future may acquire any right, title or interest, including the Patents listed on Schedule A hereto (collectively, the "Patent Collateral"), as collateral security for the prompt and complete payment and performance when due (whether at the stated maturity, by acceleration or otherwise) of the Obligor's Obligations.

SECTION 3. Purpose. This Agreement has been executed and delivered by Obligor for the purpose of recording the grant of security interest in the Patent Collateral with the United States Patent and Trademark Office. The security interest granted hereby has been granted to the Lenders in connection with the Guarantee and Collateral Agreement and is expressly subject to the terms and conditions thereof. The Guarantee and Collateral Agreement (and all rights and remedies of the Lenders thereunder) shall remain in full force and effect in accordance with its terms.


SECTION 4. Acknowledgment. Obligor does hereby further acknowledge and affirm that the rights and remedies of the Lenders with respect to the security interest in the Patent Collateral granted hereby are more fully set forth in the Credit Agreement and the Guarantee and Collateral Agreement, the terms and provisions of which (including the remedies provided for therein) are incorporated by reference herein as if fully set forth herein. In the event of a conflict between this Agreement and the Guarantee and Collateral Agreement, the Guarantee and Collateral Agreement shall control.

SECTION 5. Counterparts. This Agreement may be executed in counterparts, each of which will be deemed an original, but all of which together constitute one and the same original.

[Signature pages to follow.]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed and delivered by their respective officers thereunto duly authorized as of the day and year first above written.

TENNECO AUTOMOTIVE OPERATING COMPANY INC.

By: 
Name: Paul D. Novas
Title: Vice President, Finance

{Signature Page to Grant of Security Interest in Patent Rights}

PATENT
REEL: 042809 FRAME: 0527

ADMINISTRATIVE AGENT:

JPMORGAN CHASE BANK, N.A.

By:  _____
Name: Gene Riego de Dios
Title: Executive Director

[Signature Page to Grant of Security Interest in Patent Rights]

PATENT
REEL: 042809 FRAME: 0528

SCHEDULE A – U.S. PATENT APPLICATIONS AND REGISTRATIONS

<u>PATENT TITLE</u>	<u>OWNER</u>	<u>Application No.</u>	<u>Registration No.</u>
Shock Absorbers having a Composite Base Assembly with an Over-Molded Closure Insert	Tenneco Automotive Operating Company Inc.	14/952058	
SHOCK ABSORBERS HAVING A COMPOSITE BASE ASSEMBLY WITH AXIAL FLEXIBILITY COMPENSATION	Tenneco Automotive Operating Company Inc.	14/952047	
Shock Absorbers having a Composite Base Assembly with an Over-Molded Closure Insert	Tenneco Automotive Operating Company Inc.	US2015062668	
SHOCK ABSORBERS HAVING A COMPOSITE BASE ASSEMBLY WITH AXIAL FLEXIBILITY COMPENSATION	Tenneco Automotive Operating Company Inc.	US2015062669	
Impact Reinforced Composite Spring Seat for a Shock Absorber	Tenneco Automotive Operating Company Inc.	15/006363	
Impact Reinforced Composite Spring Seat for a Shock Absorber	Tenneco Automotive Operating Company Inc.	PCT/US2016/014851	
Secondary Dampening Assembly for Shock Absorber	Tenneco Automotive Operating Company Inc.	15/014625	US9605726
Secondary Dampening Assembly for Shock Absorber	Tenneco Automotive Operating Company Inc.	PCT/US2016/016296	
Secondary Dampening Assembly for Shock Absorber	Tenneco Automotive Operating Company Inc.	15/017056	
Secondary Dampening Assembly for Shock Absorber	Tenneco Automotive Operating Company Inc.	PCT/US2016/016812	
Mobile Diesel Selective Catalytic Reduction Systems and Methods	Tenneco Automotive Operating Company Inc.	10/718839	6941746
SYSTEM & METHOD FOR REDUCING NOx IN COMBUSTION EXHAUST STREAMS	Tenneco Automotive Operating Company Inc.	10/298981	6865881
METHODS & APPARATUS FOR INJECTING ATOMIZED FLUID	Tenneco Automotive Operating Company Inc.	11/112039	7467749
METHODS & APPARATUS FOR INJECTING ATOMIZED FLUID	Tenneco Automotive Operating Company Inc.	12/275539	8047452

Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	Tenneco Automotive Operating Company Inc.	11/754872	7861520
Dual Injector System for Diesel Emissions Control	Tenneco Automotive Operating Company Inc.	11/870012	8109077
Pressure Swirl Flow Injector With Reduced Flow Variability And Return Flow	Tenneco Automotive Operating Company Inc.	13/023870	8998114
Gen 3 Injector	Tenneco Automotive Operating Company Inc.	13/164976	8740113
Gen 3 Injector (Flux Bridge)	Tenneco Automotive Operating Company Inc.	13/220980	8973895
Gen 3 Injector	Tenneco Automotive Operating Company Inc.	14/641820	
Gen 3 Injector	Tenneco Automotive Operating Company Inc.	14/642819	
A Reinforcement Fabric For Reinforcement Of An Impact Resistant Or Structural Composite Part	Tenneco Automotive Operating Company Inc.	EP2014/073627	
DAMPER WITH EXTERNALLY MOUNTED SEMI-ACTIVE SYSTEM	Tenneco Automotive Operating Company Inc.	09/318301	6321888
STROKE DEPENDENT DAMPING	Tenneco Automotive Operating Company Inc.	09/168034	6352145
ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	Tenneco Automotive Operating Company Inc.	09/044715	5992585
ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	Tenneco Automotive Operating Company Inc.	09/443236	6290035
SOLENOID ACTUATED CONTINUOUSLY VARIABLE SERVO VALVE FOR ADJUSTING DAMPING IN SHOCK ABSORBERS AND STRUTS	Tenneco Automotive Operating Company Inc.	10/730560	7438164
Single Piece Piston	Tenneco Automotive Operating Company Inc.	09/360570	6464053
Stroke Dependent Bypass	Tenneco Automotive Operating Company Inc.	09/306343	6220409

FULCRUM BLOW OFF VALVE FOR USE IN A SHOCK ABSORBER	Tenneco Automotive Operating Company Inc.	09/328576	6371264
FREQUENCY DEPENDANT DAMPER	Tenneco Automotive Operating Company Inc.	09/159722	6148969
FREQUENCY DEPENDANT DAMPER	Tenneco Automotive Operating Company Inc.	09/399537	6382373
FREQUENCY DEPENDANT DAMPER	Tenneco Automotive Operating Company Inc.	09/703012	6364075
LINK ASSEMBLY FOR MOTOR VEHICLE SUSPENSION	Tenneco Automotive Operating Company Inc.	09/414115	6354614
AXLE SHAFT SPACER MEMBER	Tenneco Automotive Operating Company Inc.	09/415406	6267197
Air Pressure Proportional Damper	Tenneco Automotive Operating Company Inc.	10/738341	7252181
VARIABLE BLEED ORIFICE VALVING	Tenneco Automotive Operating Company Inc.	09/552125	6672436
INDEPENDENTLY TUNABLE VARIABLE BLEED ORIFICE	Tenneco Automotive Operating Company Inc.	09/575900	6460664
FLOATING PORT BLOCKER	Tenneco Automotive Operating Company Inc.	09/992316	6644445
Thermal Expansion Compensation Shock Absorber	Tenneco Automotive Operating Company Inc.	10/671354	7004293
Frequency Dependent Damper	Tenneco Automotive Operating Company Inc.	09/778455	7070028
Air Spring Assembly On Shock Absorber with Combined Seal	Tenneco Automotive Operating Company Inc.	09/867297	6443436
Electronically Controlled Frequency Dependent Damping	Tenneco Automotive Operating Company Inc.	11/900606	8210330
ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	Tenneco Automotive Operating Company Inc.	09/992309	6581733
ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	Tenneco Automotive Operating Company Inc.	10/425127	6793049

Adjustable Damper with Valve Mounted In-Line	Tenneco Automotive Operating Company Inc.	10/667555	6959796
Stroke Dependent Bypass	Tenneco Automotive Operating Company Inc.	10/666051	6918473
TWIN PISTON SHOCK ABSORBER	Tenneco Automotive Operating Company Inc.	10/464192	6776269
Integrated Tagging System for an Electronic Shock Absorber	Tenneco Automotive Operating Company Inc.	10/662546	6964325
Adjustable Damper with Control Valve, Mounted in an External Collar	Tenneco Automotive Operating Company Inc.	10/666196	6978871
Monotube Piston Valving System with Selective Bleed	Tenneco Automotive Operating Company Inc.	10/662544	7070029
Monotube Piston Valving System with Selective Bleed	Tenneco Automotive Operating Company Inc.	11/879727	
Monotube Piston Valving System with Selective Bleed	Tenneco Automotive Operating Company Inc.	12/807511	
Rod Guide and Seal System for Gas Filled Shock Absorbers	Tenneco Automotive Operating Company Inc.	10/779592	7011193
SHOCK ABSORBER HAVING A HYDRAULIC SHOCK	Tenneco Automotive Operating Company Inc.	10/937838	7032727
SHOCK ABSORBER HAVING A HYDRAULIC SHOCK	Tenneco Automotive Operating Company Inc.	11/330277	7156213
AUTOMATIC ORIENTATION OF THE TOP MOUNT	Tenneco Automotive Operating Company Inc.	11/222343	7314224
AMPLITUDE CONTROLLED ORIFICE VALVING (MAD)	Tenneco Automotive Operating Company Inc.	11/248102	7216747
FOUR PIECE PISTON FOR MTBO	Tenneco Automotive Operating Company Inc.	11/472261	7703586
SEMI-ACTIVE ANTI-ROLL SYSTEM	Tenneco Automotive Operating Company Inc.	11/471311	7751959
Continuously Variable Semi Active Valve For Shock Absorbers	Tenneco Automotive Operating Company Inc.	11/546501	7743896

SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	Tenneco Automotive Operating Company Inc.	11/787452	7926632
SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	Tenneco Automotive Operating Company Inc.	13/034050	8256586
SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	Tenneco Automotive Operating Company Inc.	13/477142	8511444
USE OF SHOCK ABSORBER DIRT SHIELD AS DYNAMIC VIBRATION DAMPER	Tenneco Automotive Operating Company Inc.	11/724640	7896142
Semi Third Tube Design	Tenneco Automotive Operating Company Inc.	11/888079	7950506
Disc Spring Intake	Tenneco Automotive Operating Company Inc.	11/897201	8083039
Improved Rod Assembly Weld	Tenneco Automotive Operating Company Inc.	11/787447	7743897
Velocity Progressive Valving	Tenneco Automotive Operating Company Inc.	12/620618	8794407
Positioning Feature and Method for Precise Vehicle Heights	Tenneco Automotive Operating Company Inc.	12/070536	7988166
Positioning Feature and Method for Precise Vehicle Heights	Tenneco Automotive Operating Company Inc.	13/164890	8196942
JUNCTION BLEED as feature for closed bleed valve design	Tenneco Automotive Operating Company Inc.	11/821121	8069964
Shock Absorber having a full displacement valve assembly (Global Valve)	Tenneco Automotive Operating Company Inc.	11/897351	8997953
Nested Check High Speed Valve / Flow sensitive support washer /Belleville port blocker / 2nd piston high speed restriction	Tenneco Automotive Operating Company Inc.	13/564944	8714320
Nested Check High Speed Valve / Flow sensitive support washer /Belleville port blocker /	Tenneco Automotive Operating Company Inc.	13/564954	8590678

2nd piston high speed restriction			
Nested Check High Speed Valve / Flow sensitive support washer /Belleville port blocker / 2nd piston high speed restriction	Tenneco Automotive Operating Company Inc.	13/564964	8668061
Nested Check High Speed Valve / Flow sensitive support washer /Belleville port blocker / 2nd piston high speed restriction	Tenneco Automotive Operating Company Inc.	13/564973	8511446
Nested Check High Speed Valve / Flow sensitive support washer /Belleville port blocker / 2nd piston high speed restriction	Tenneco Automotive Operating Company Inc.	12/133448	8297418
Inverted strut comprising an air damper combined with a hydraulic stop	Tenneco Automotive Operating Company Inc.	12/547582	8701846
A Triple tube shock absorber having a shortened intermediate tube	Tenneco Automotive Operating Company Inc.	12/366106	8511447
HIGH VELOCITY DAMPING VALVE	Tenneco Automotive Operating Company Inc.	12/496964	9033121
HIGH Velocity Compression DAMPING VALVE	Tenneco Automotive Operating Company Inc.	14/326490	9285011
Damper with Digital Valve	Tenneco Automotive Operating Company Inc.	12/573911	8616351
Damper with Digital Valve	Tenneco Automotive Operating Company Inc.	14/849092	
Damper with Digital Valve	Tenneco Automotive Operating Company Inc.	15/450885	
Damper with Digital Valve	Tenneco Automotive Operating Company Inc.	14/134390	9150077
Front cab damper with double path mount	Tenneco Automotive Operating Company Inc.	12/772446	8371562
Multi stage valve & Hydraulic Damped Valve	Tenneco Automotive Operating Company Inc.	12/791036	8627933
Multipart spring seat design	Tenneco Automotive Operating Company Inc.	12/772459	8196941

Damper Tubel Reinforcement Sleeve for Shock Absorber	Tenneco Automotive Operating Company Inc.	13/007718	8408569
Damper Tubel Reinforcement Sleeve for Shock Absorber	Tenneco Automotive Operating Company Inc.	13/167056	8434772
Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	Tenneco Automotive Operating Company Inc.	13/020822	8739948
Low Noise Compression/Rebound Valve Assembly	Tenneco Automotive Operating Company Inc.	13/187647	9169890
Energy harvesting passive & active suspension	Tenneco Automotive Operating Company Inc.	13/286457	8966889
Energy harvesting passive & active suspension	Tenneco Automotive Operating Company Inc.	14/616112	
Monotube Blow Off piston Assembly with Open Bleed	Tenneco Automotive Operating Company Inc.	14/191538	9067471
Active suspension with energy recuperation option	Tenneco Automotive Operating Company Inc.	13/736269	9481221
Spring Seat Manufacturing Installation Land or Stop Formed Into Seat	Tenneco Automotive Operating Company Inc.	13/314314	8696004
Multi Tuneable Degressive Valve	Tenneco Automotive Operating Company Inc.	13/606039	9080629
Shock absorber with 4 chambers	Tenneco Automotive Operating Company Inc.	13/487334	
Rod guide arrangement for digital valve applications	Tenneco Automotive Operating Company Inc.	13/947169	9163691
Two Position Valve Arrangements for Shock Absorber	Tenneco Automotive Operating Company Inc.	14/208410	
Active suspension system with hydraulic energy recuperation, storage and reuse with chamber decoupling and hydraulic boost.	Tenneco Automotive Operating Company Inc.	13/660234	8820064
Dual Range Damping System for a Shock Absorber	Tenneco Automotive Operating Company Inc.	13/849581	9074651
Jounce Bumper Nose Retaining feature for a Shock Absorber	Tenneco Automotive Operating Company Inc.	13/787941	9004470

Valve Switching Controls for Adjustable Damper	Tenneco Automotive Operating Company Inc.	14/191885	9217483
Valve Switching Controls for Adjustable Damper	Tenneco Automotive Operating Company Inc.	14/947222	
Rod Guide Assembly with Multi-Piece Valve Assembly, Single Coil Overmold Assembly, Circuit Board Assembly, and Oil Seal Located above the Upper Rod Guide	Tenneco Automotive Operating Company Inc.	14/211318	9404551
Suspension Leveling System	Tenneco Automotive Operating Company Inc.	14/249461	9272598
Hydraulic leveling in combination with an active suspension system	Tenneco Automotive Operating Company Inc.	13/950379	9108484
Recuperating Passive and Active Suspension	Tenneco Automotive Operating Company Inc.	14/793866	9586456
Frequency dependant passive valve working in rebound and compression	Tenneco Automotive Operating Company Inc.	13/950423	9080634
Frequency dependant passive valve working in rebound and compression	Tenneco Automotive Operating Company Inc.	14/193102	9500255
Frequency dependant passive valve working in rebound or in compression	Tenneco Automotive Operating Company Inc.	13/975454	9239092
SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Tenneco Automotive Operating Company Inc.	14/878397	
Orifice disc for regulating flow in a damper	Tenneco Automotive Operating Company Inc.	14/275235	9441699
Low pressure high compression damping monotube shock absorber	Tenneco Automotive Operating Company Inc.	14/459394	9533538
Damper with Integrated Electronics (In Guide)	Tenneco Automotive Operating Company Inc.	14/193879	9399383
Damper with Integrated Electronics	Tenneco Automotive Operating Company Inc.	15/218501	
Damper with Integrated Electronics (In Cap)	Tenneco Automotive Operating Company Inc.	14/303943	

Autonomous Control Damper	Tenneco Automotive Operating Company Inc.	14/192173	
Rod Guide System and Method with Multiple Solenoid Valve Cartridges and Multiple Pressure Regulated Valve Assemblies	Tenneco Automotive Operating Company Inc.	14/738332	
Electromagnetic Flywheel Damper and Method Therefor	Tenneco Automotive Operating Company Inc.	14/799179	
Electromagnetic Flywheel Damper and Method Therefor	Tenneco Automotive Operating Company Inc.	PCT/US2015/0405 91	
Plastic Spring Seat Having Integrated Crash Member	Tenneco Automotive Operating Company Inc.	14/806776	
SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Tenneco Automotive Operating Company Inc.	14/459513	9441700
SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Tenneco Automotive Operating Company Inc.	PCT/US2015/0384 13	
SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Tenneco Automotive Operating Company Inc.	14/459589	9222539
SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Tenneco Automotive Operating Company Inc.	PCT/US2015/3841 6	
Shock Absorber Having Orifice Check Disc	Tenneco Automotive Operating Company Inc.	14/553118	9500251
Shock Absorber having Orifice Check Disc	Tenneco Automotive Operating Company Inc.	PCT/US2015/0621 70	
Double Tube Damper With Structural Pressure Tube	Tenneco Automotive Operating Company Inc.	14/991306	
Double Tube Damper With Structural Pressure Tube	Tenneco Automotive Operating Company Inc.	PCT/US2016/0126 77	
System and Method For Attaching A Control Element Of An Air Spring With Internal Height Regulating Valve	Tenneco Automotive Operating Company Inc.	14/849005	9579944
System and Method For Attaching A Control Element Of An Air Spring With Internal Height Regulating Valve	Tenneco Automotive Operating Company Inc.	PCT/US2015/0493 24	

Helical Blow-off Disc	Tenneco Automotive Operating Company Inc.	14/716048	9587703
Variable Pressure Area Non-Concentric Land Piston	Tenneco Automotive Operating Company Inc.	15/402,813	
Shock Absorber Having Check Disc for Orifice Passage	Tenneco Automotive Operating Company Inc.	15/046566	
Monotube Active Suspension System Having Different System Layouts for Controlling Pump Flow Distribution	Tenneco Automotive Operating Company Inc.	15/434435	
System for Active Control of Suspension	Tenneco Automotive Operating Company Inc.	15/440059	
System and Method for Controlling Dampers of an Active Suspension System	Tenneco Automotive Operating Company Inc.	PCT/US2017/019330	
Damper Having Reinforced Catcher	Tenneco Automotive Operating Company Inc.	15/077214	
Single Piece Steering Stabilizer for Motor Vehicle	Tenneco Automotive Operating Company Inc.	15/189574	
Method of Alerting Driver to Condition of Suspension System	Tenneco Automotive Operating Company Inc.	62/403,256	
Baffle Tube for Damper with Electromechanical Valve	Tenneco Automotive Operating Company Inc.	15/380468	
Quad FET for Power and Accuracy	Tenneco Automotive Operating Company Inc.	15/464,735	
ACOUSTIC SYSTEM IDENTIFICATION USING ACOUSTIC MASKING	Tenneco Automotive Operating Company Inc.	09/195294	6594365
STRAIGHT THROUGH MUFFLER WITH CONICALLY-ENDED OUTPUT PASSAGE	Tenneco Automotive Operating Company Inc.	09/339996	6158546
METHOD AND APPRATUS FOR SEALING CANISTERS	Tenneco Automotive Operating Company Inc.	09/568632	6446322
EMBOSSSED SHELL FOR SPUN MUFFLERS	Tenneco Automotive Operating Company Inc.	10/373821	6892855
COMBINED MUFFLER / HEAT EXCHANGER	Tenneco Automotive Operating Company Inc.	10/876242	7063134

Novel Method for Reducing NOx Emissions from Diesel Exhaust using Hydrogen as a Reducing Agent	Tenneco Automotive Operating Company Inc.	11/269124	7712308
Snap action valve for Exhaust system	Tenneco Automotive Operating Company Inc.	11/687151	7434570
Snap action valve for Exhaust system	Tenneco Automotive Operating Company Inc.	12/139637	8215103
Snap action valve for Exhaust system	Tenneco Automotive Operating Company Inc.	12/041114	7775322
Snap action valve for Exhaust system	Tenneco Automotive Operating Company Inc.	12/955199	8468813
Catalytic Converter Mid Bed Insulation Ring	Tenneco Automotive Operating Company Inc.	11/856931	7897117
EXHAUST SYSTEM WITH PLURAL EMISSION TREATMENT DEVICES	Tenneco Automotive Operating Company Inc.	11/862241	7845166
Exhaust Gas Cooling Pipe Design	Tenneco Automotive Operating Company Inc.	12/200012	7845465
Charged Air Bypass for Aftertreatment Combustion Air Supply	Tenneco Automotive Operating Company Inc.	12/041943	7980061
Charged Air Bypass for Aftertreatment Combustion Air Supply	Tenneco Automotive Operating Company Inc.	13/171947	8776504
Snap Action Valve with Bumper Pad	Tenneco Automotive Operating Company Inc.	12/424915	8191572
SNAP ACTION VALVE WITH INERTIAL DAMPER	Tenneco Automotive Operating Company Inc.	12/470560	7896130
METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	Tenneco Automotive Operating Company Inc.	12/424783	8381401
Snapper Valve for Hot End Systems with Burners	Tenneco Automotive Operating Company Inc.	12/712395	8353153
09-0370 Ultrasonic Acoustic Emissions to Detect Substrate Fracture	Tenneco Automotive Operating Company Inc.	12/788882	8281661
On Vehicle NOx aftertreatment system	Tenneco Automotive Operating Company Inc.	12/773314	8381514

Exhaust Gas Stream Vortex Breaker	Tenneco Automotive Operating Company Inc.	12/907421	8438839
Exhaust Treatment Device Insulation System	Tenneco Automotive Operating Company Inc.		
Inlet for Exhaust Treatment Device	Tenneco Automotive Operating Company Inc.	12/948974	8464516
Co Axial Exhaust Inlet / Outlet Configuration for T.R.U.E.-Clean	Tenneco Automotive Operating Company Inc.	13/316872	8656708
Axial Exhaust Inlet / Outlet Configuration for T.R.U.E.-Clean	Tenneco Automotive Operating Company Inc.	14/177255	9140158
Reagent Tank Normalizing System	Tenneco Automotive Operating Company Inc.	13/274408	8402750
Exhaust Aftertreatment Device With Integrated Shell And Baffle	Tenneco Automotive Operating Company Inc.	13/040623	8609030
Exhaust Aftertreatment Device With Integrated Shell And Baffle	Tenneco Automotive Operating Company Inc.	14/075095	8784742
Exhaust Aftertreatment Device With Integrated Shell And Baffle	Tenneco Automotive Operating Company Inc.	14/326727	9005535
Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	Tenneco Automotive Operating Company Inc.	13/043889	8776509
Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	Tenneco Automotive Operating Company Inc.	14/326739	
Poka-Yoke Mounting System for an Exhaust Treatment Device	Tenneco Automotive Operating Company Inc.	13/039559	8561395
Poka-Yoke Mounting System for an Exhaust Treatment Device	Tenneco Automotive Operating Company Inc.	14/823161	
Poka-Yoke Mounting System for an Exhaust Treatment Device	Tenneco Automotive Operating Company Inc.	14/058342	9151198
Reductant Injection Control System	Tenneco Automotive Operating Company Inc.	13/198952	8635854
Leaf Spring Bracket	Tenneco Automotive Operating Company Inc.	13/154529	8690115

Pre-Injection Flow Modifier	Tenneco Automotive Operating Company Inc.	13/227952	8677738
Pre-Injection Flow Modifier	Tenneco Automotive Operating Company Inc.	14/193499	9347355
Pre-Injection Flow Modifier	Tenneco Automotive Operating Company Inc.	14/956727	
Pre-Injection Flow Modifier	Tenneco Automotive Operating Company Inc.	15/148,179	
Exhaust Gas Aftertreatment System for Engines Equipped with Exhaust Gas Recirculation EQUIPPED WITH EXHAUST GAS RECIRCULATION	Tenneco Automotive Operating Company Inc.	13/232195	
Exhaust Treatment Device with Integral Mount	Tenneco Automotive Operating Company Inc.	13/268124	8721977
Exhaust Treatment Device with Integral Mount	Tenneco Automotive Operating Company Inc.	14/619613	9140174
Exhaust Treatment Device with Integral Mount	Tenneco Automotive Operating Company Inc.	14/274818	9163549
XNOX Common rail	Tenneco Automotive Operating Company Inc.	13/529008	
Reagent Injector Control System	Tenneco Automotive Operating Company Inc.	13/311806	8701389
Exhaust Treatment Secondary Air Supply System	Tenneco Automotive Operating Company Inc.	13/420982	9133743
Pitot tube connection for thermal growth	Tenneco Automotive Operating Company Inc.	13/706461	
Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	Tenneco Automotive Operating Company Inc.	13/468614	8910884
Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	Tenneco Automotive Operating Company Inc.	14/564450	
Reagent Injector	Tenneco Automotive Operating Company Inc.	13/465281	8978364
Reagent Injector	Tenneco Automotive Operating Company Inc.	14/619543	

DPF Thermal slip joint	Tenneco Automotive Operating Company Inc.	13/593706	9010096
Improvement to EUEC 2 stage mixer ref (EUEC-9100)	Tenneco Automotive Operating Company Inc.	13/571542	8939638
Improvement to EUEC 2 stage mixer ref (EUEC-9100)	Tenneco Automotive Operating Company Inc.	14/799081	
Improvement to EUEC 2 stage mixer ref (EUEC-9100)	Tenneco Automotive Operating Company Inc.	14/089822	9095827
Improvement to EUEC 2 stage mixer ref (EUEC-9100)	Tenneco Automotive Operating Company Inc.	14/325460	9440204
Reagent Injector with Crimped Pintle	Tenneco Automotive Operating Company Inc.	13/606409	8998116
12-0709 Vaporizer Burner with Alternate HCI	Tenneco Automotive Operating Company Inc.	13/664775	
12-0708 Large Engine Mounting structure attachment	Tenneco Automotive Operating Company Inc.	13/692127	9057316
Exhaust Component Mounting Structure	Tenneco Automotive Operating Company Inc.	14/731770	9291086
Reductant Injection Control System	Tenneco Automotive Operating Company Inc.	13/690090	9080487
Urea Common Rail injection	Tenneco Automotive Operating Company Inc.	13/780279	9222388
Urea Common Rail injection	Tenneco Automotive Operating Company Inc.	14/944800	
Exhaust Gas Flow Distribution System	Tenneco Automotive Operating Company Inc.	14/028645	9518496
Soft Bumper for HP Valve Rattle Fix	Tenneco Automotive Operating Company Inc.	13/715172	8657065
Exhaust Aftertreatment Burner with Preheated Combustion Air	Tenneco Automotive Operating Company Inc.	13/778649	9027331
Burner with Air-Assisted Fuel Nozzle and Vaporizing Ignition System	Tenneco Automotive Operating Company Inc.	13/778682	8991163

Flame rod ion sensing system with integral decoking heater	Tenneco Automotive Operating Company Inc.	13/778709	9027332
Burner for dual fuels and prevention of ammonia bi sulfate	Tenneco Automotive Operating Company Inc.	13/804027	9057303
Exhaust System for Dual Fuel Engines	Tenneco Automotive Operating Company Inc.	14/732833	
Max (Full Flow Burner) re-design, eliminating secondary combustion zone, adding vane type mixing	Tenneco Automotive Operating Company Inc.	13/778737	8959902
Electrically assisted, belt driven compressor for RGU	Tenneco Automotive Operating Company Inc.	13/782240	8893478
Modular Isothermal Box	Tenneco Automotive Operating Company Inc.	13/833574	9103252
Single-Ended DPF Assembly Joint System (Exhaust treatment mounting System)	Tenneco Automotive Operating Company Inc.	13/795430	8974740
MULTI-LOBED SOOT BLOWER	Tenneco Automotive Operating Company Inc.	14/764847	
11-0599 Liquid Cooled injector mount	Tenneco Automotive Operating Company Inc.	13/833850	8973355
Air-Assisted Reductant Delivery System	Tenneco Automotive Operating Company Inc.	14/380414	9359928
Modular System for Reduction of Sulphur Oxides in Exhaust	Tenneco Automotive Operating Company Inc.	14/180616	9387438
Insulation detection for large engine	Tenneco Automotive Operating Company Inc.	14/154524	9108157
Urea Temperature Rationality Diagnostic	Tenneco Automotive Operating Company Inc.	13/803205	9016043
Mirrored 2-Stage Mixer Concept	Tenneco Automotive Operating Company Inc.	13/961989	
Water Injection Exhaust Treatment System	Tenneco Automotive Operating Company Inc.	14/512609	
Water Injection Exhaust Treatment System	Tenneco Automotive Operating Company Inc.	14/512609	

Water Injection Exhaust Treatment System	Tenneco Automotive Operating Company Inc.	14/389224	9334775
Engine Exhaust After-Treatment System	Tenneco Automotive Operating Company Inc.	14/782874	
Flow Reversing Exhaust Gas Mixer	Tenneco Automotive Operating Company Inc.	13/888861	9289724
Axial Flow Atomization Module (reverse Flow)	Tenneco Automotive Operating Company Inc.	13/958955	9314750
Compact High-Velocity Urea Atomization Tube (auto wetting)	Tenneco Automotive Operating Company Inc.	14/165923	9291081
Vertical Ultrasonic Decomp Pipe (Ultrasonic)	Tenneco Automotive Operating Company Inc.	14/486171	9334781
Compact High-Velocity Urea Atomization Tube Assembly for Multiple SCR Substrates	Tenneco Automotive Operating Company Inc.	14/486213	9352276
Exhaust Mixing Assembly (Flow Stabilizer)	Tenneco Automotive Operating Company Inc.	14/486253	9364790
Axial Flow Atomization Module with Mixing Device (Clocked Inj)	Tenneco Automotive Operating Company Inc.	14/486308	
Reductant Sensor System	Tenneco Automotive Operating Company Inc.	14/271788	
Closed Loop non-Linear Targeting and Fuel Control for DOC/DPF	Tenneco Automotive Operating Company Inc.	13/910626	9046021
Method for Use of Ammonia Sensor to Determine Soot Load on SCR Coated DPF	Tenneco Automotive Operating Company Inc.	14/032665	9371767
Perforated Mixing Pipe with Swirler	Tenneco Automotive Operating Company Inc.	13/960151	9410464
Perforated Mixing Pipe with Swirler	Tenneco Automotive Operating Company Inc.	14/260555	9435240
Tailor to Fit Muffler Design	Tenneco Automotive Operating Company Inc.	14/462857	9121320
Tailor to Fit Muffler Design	Tenneco Automotive Operating Company Inc.	14/810590	

Injector_height_compensation_sw_algorithm	Tenneco Automotive Operating Company Inc.	14/085308	9221014
Exhaust System with Zone Coated Catalyst	Tenneco Automotive Operating Company Inc.	14/592034	9482131
Exhaust After-treatment System Having Low Temperature SCR Catalyst	Tenneco Automotive Operating Company Inc.	14/445686	
Exhaust After-treatment System Having Low Temperature SCR Catalyst	Tenneco Automotive Operating Company Inc.	PCT/US2015/042172	
Recirculating Exhaust Treatment Fluid System	Tenneco Automotive Operating Company Inc.	14/271811	
Fluid Delivery System with Line Pressure Control Valve	Tenneco Automotive Operating Company Inc.	15/316956	
System and Method for Detecting Face-Plugging of an Exhaust Aftertreatment Component	Tenneco Automotive Operating Company Inc.	14/597745	
System and Method for Detecting face-Plugging of an Exhaust Aftertreatment Component	Tenneco Automotive Operating Company Inc.	PCT/US2015/056901	
Carbon Dioxide Recirculation System	Tenneco Automotive Operating Company Inc.	14/925062	9546621
Exhaust Aftertreatment System Having Mixer Assembly	Tenneco Automotive Operating Company Inc.	15/001356	
Exhaust Aftertreatment System Having Mixer Assembly	Tenneco Automotive Operating Company Inc.	PCT/US2016/014275	
Waste Heat Recovery System with Current Regulator	Tenneco Automotive Operating Company Inc.	14/699233	
EXHAUST AFTER-TREATMENT SYSTEM INCLUDING AMMONIA AND HYDROGEN GENERATION	Tenneco Automotive Operating Company Inc.	15/001448	
Exhaust System Having Segmented Service Flange	Tenneco Automotive Operating Company Inc.	14/677012	
Exhaust Aftertreatment System With Ammonia Gas Generator	Tenneco Automotive Operating Company Inc.	14/931039	

Tri Mode Injection	Tenneco Automotive Operating Company Inc.	PCT/US2016/047700	
Combination Mixer Assembly	Tenneco Automotive Operating Company Inc.	14/722762	9534525
Combo Mixer	Tenneco Automotive Operating Company Inc.	PCT/US16/34150	
Exhaust After-Treatment System Including Electrolysis Generated H2 and NH3	Tenneco Automotive Operating Company Inc.	14/972642	
Dual Auger System	Tenneco Automotive Operating Company Inc.	15/050504	
Dual Auger System	Tenneco Automotive Operating Company Inc.	PCT/US2016/019122	
Arrangement of Catalyzed TEG Systems	Tenneco Automotive Operating Company Inc.	14/809730	9551257
Particulate Sensor Assembly	Tenneco Automotive Operating Company Inc.	14/818361	
Exhaust Treatment System Having Metal Hydride Module	Tenneco Automotive Operating Company Inc.	14/937239	
Exhaust Treatment System Having Membrane Module For Water Removal	Tenneco Automotive Operating Company Inc.	15/050521	
HP valve w Slots	Tenneco Automotive Operating Company Inc.	15/238838	
Filter Assembly	Tenneco Automotive Operating Company Inc.	15/075803	
Fluid Delivery System for Exhaust Aftertreatment System	Tenneco Automotive Operating Company Inc.	15172357	
Compact Inline Inlet with Integrated Cast Ring	Tenneco Automotive Operating Company Inc.	62/333,464	
Flutter Dampened Exhaust Valve	Tenneco Automotive Operating Company Inc.	15/238872	
Passive Exhaust Valve with Dual Torsion Spring	Tenneco Automotive Operating Company Inc.	15229180	

Passive Exhaust Valve with External Torsion Spring	Tenneco Automotive Operating Company Inc.	15/229189	
Apparatus And Method Of Producing Insulation Preform With Graded Porosity	Tenneco Automotive Operating Company Inc.	15386126	
Method for Urea Conversion Efficiency Measurement	Tenneco Automotive Operating Company Inc.	62/448425	
Exhaust Conduit Hanger	Tenneco Automotive Operating Company Inc.	15/480776	
Double Thin Wall Conduit Hanger	Tenneco Automotive Operating Company Inc.	15480830	
Cantilevered Flow Distributing Apparatus	Tenneco Automotive Operating Company Inc.	15/182697	
LOOSE-FILL INSULATION EXHAUST GAS TREATMENT DEVICE AND METHODS OF MANUFACTURING	Tenneco Automotive Operating Company Inc.	14/085576	
Reservoir for Gas Treatment Device having Loose Fill Insulation and an Associated Method of use	Tenneco Automotive Operating Company Inc.	14/687211	
Linear Control of an Automobile Suspension	Tenneco Automotive Operating Company Inc.	10/861373	7386378
SHOCK ABSORBER WITH INTEGRATED DISPLACEMENT SENSOR	Tenneco Automotive Operating Company Inc.	11/181026	7493995
Device for Lowering Tail Pipe Exhaust Temperature	Tenneco Automotive Operating Company Inc.	11/985221	7913489
Exhaust Gas Additive / Treatment System and Mixer for Use Therein	Tenneco Automotive Operating Company Inc.	12/150269	8141353
Tailpipe cooling device	Tenneco Automotive Operating Company Inc.	12/386449	8272210
Double Swirl Exhaust + Urea Mixer - Butterfly design	Tenneco Automotive Operating Company Inc.	12/215271	8397495

IMD or GBD control for Multi-Layer mat wrap	Tenneco Automotive Operating Company Inc.	12/616568	8667681
Injector Mounting System	Tenneco Automotive Operating Company Inc.	12/698488	8327829
Burner for a Diesel Aftertreatment System	Tenneco Automotive Operating Company Inc.	12/881858	8869518
Elim-NOx Injector firing control circuit concepts (Flyback Diode)	Tenneco Automotive Operating Company Inc.	12/631479	8468810
Flared Siphon Tube (Non round dust ejector)	Tenneco Automotive Operating Company Inc.	12/567311	8277548
Butterfly Mixer - Enhanced	Tenneco Automotive Operating Company Inc.	12/620302	8375709
Spiral Telescoping for Multi-Layer Wrapping	Tenneco Automotive Operating Company Inc.	12/894712	8752290
Spiral Telescoping for Multi-Layer Wrapping	Tenneco Automotive Operating Company Inc.	13/399365	8661673
Method of installing a longitudinally offset multi-layer mat in an exhaust gas aftertreatment or acoustic device	Tenneco Automotive Operating Company Inc.	12/894851	8505203
Method of Insulating an Exhaust Device	Tenneco Automotive Operating Company Inc.	13/179982	8100315
Method of Producing an Insulated Exhaust Device	Tenneco Automotive Operating Company Inc.	13/277663	9217357
Method of Producing an Insulated Exhaust Device	Tenneco Automotive Operating Company Inc.	14/941961	
11-0632_Powder Insulation Impregnated Multi-Layer wrap.pdf	Tenneco Automotive Operating Company Inc.	13/612269	8747510