

# Shop Manual

[www.badgoat.net/ptcaths](http://www.badgoat.net/ptcaths)

February 2017

## President's Message

*Jamie Mason*

In January, your executive board met at our house and we reviewed the 2016 events. We all felt that we had a lot of good events. We reviewed the our previous events, and used our experiences to help us look into the 2017 PTC event schedule. Thank you to the members, volunteers, and executive board for all the time and money spent keeping the PTC thriving.

Looking ahead, we've got the annual meeting at Owls Head Transportation Museum. The museum opens at 10. Pot Luck lunch at 11:30-12:30 and the meeting will start at 12:30. We should be done around 2:30-3:00. This is a great time to pay your dues....hint hint! After the annual meeting, we'll be reviewing the membership roster and if you haven't paid your dues, we'll be reaching out to you and if you don't want to remain a member, we'll remove your name from our roster. Going along with this, please remember to keep up with your national dues as well.

-+Our tentative schedule of events includes a spring tour that Peter is working on, possibly in the South Portland area. We are looking for locations for a spring tour if anyone has some suggestions. We plan on attending the Owls Head Truck Show in July. We are looking into doing a truck show in lieu of a fall tour at this point in the season. We are looking for locations for the fall auction as well. There are lots of opportunities for people to volunteer their time or location to make the PTC events fun for all. If you're unsure of hosting an event, just remember you're not alone and it takes many members to put on an event, no matter how big or small.

If you're unsure about hosting an event, another way to help is by joining a committee. Nancy is heading up the Owls Head committee and will be organizing meetings in the near future. The legislative committee met last week at Jon Doyle's office and reviewed the current bills for anything that might affect our hobby. At this point, none seem to be directed towards the antique hobby. Jon's concerned that one will sneak in at the last minute! Finally, we're putting a committee together to look into the feasibility of doing a fall truck

show in lieu of a fall tour. More details to come. Please consider committees if you'd like to help out more in the future!

George, our newsletter editor, is always looking for material for the Shop Manual. He put out nine newsletters last year. He and I try to put them out before major events to remind everyone about what's going on and to keep the membership apprised of old truck news and maybe some history lessons! George is always looking for material for the newsletter. Please consider putting together a story for him in the near future. If you're not much for typing or writing, George or I would be willing to help get your story on paper. I've read a lot of chapter publications and ours in one of the best (in my slightly biased opinion). Keep the stories, knowhow, and historical information coming. Thank you, George!

The executive board has put together a slate of officers for the upcoming election in March. There are some minor changes proposed. Myself as president, Peter Mullin and vice president, Diane Munsey and secretary/treasurer. The bylaws allow for one person to be both secretary and treasurer and Diane is up to the task! For directors, George Barrett, Cheryl Billings, Lars Ohman, Bob Stackpole, and Steve Corson are all willing to fill those positions. If someone would like to fill one of these positions, please get in touch with me. All our current members were willing to "run" for reelection but it's always good to look ahead if you'd like to step up to the plate!

Last, but not least, I'd like to thank John Ellingwood for being a director as past president. He's always willing to lend an ear or chuckle about a story or two. He has notified me that he is stepping down as a director to allow more time for his personal life. Thank you, John for your positive thoughts and service to the chapter. We hope to see you around in the future, as time allows!

*Jamie*

# A Gem of a Museum in Ypsilanti

*Clayton Hoak*

Nestled in the center of Depot Town in Ypsilanti Michigan is the Ypsilanti Automotive Heritage Museum. Utilizing three old buildings – an old post office, the Miller Motors auto dealership (a former Hudson dealer) and small dealership addition, and a new connecting structure between the old post office and dealership, the Museum focuses on manufacturers and individuals with ties to industrial Ypsilanti.

The 8-10,000 square feet Museum has stories and exhibits on Apex Motors, Hudson, Kaiser-Frazer, Tucker, Corvair, and GM Hydra-matic Transmission, among other makes. Apex Motors was formed in late 1919 to produce cars for the automobile starved Northwest after World War I, and built “Ace” cars in Ypsilanti from 1920-22. The venture failed after two key management people left Apex Motors in 1921 for new opportunities. There is a small wall exhibit of photos and news stories on Apex Motors. Per the Museum the records of the number of Ace automobiles produced are incomplete, and no Ace automobiles are presently known to exist.

Hudson Motor Car Company built Hudsons, Essexes and Terraplanes in Detroit from 1908 to its merger with Nash Kelvinator, forming American Motors Corporation in 1954. After the 1954 model year vehicle production was moved to Kenosha, Wisconsin.

Hudson’s tie to Ypsilanti is the Ypsilanti Automotive Heritage Museum became the home of the National Hudson Motor Car Company Museum in 2014. Utilizing the space of the former the Miller Motors auto dealership and addition, numerous Hudsons, Essexes and Terraplanes are shown, including a 1909 Hudson Model 20, a 1952 Hudson Hornet stock car, and a 1955 Hudson Italia with an aluminum body by Carrozzeria Touring of Milan, Italy (1 of 26 built).

In the National Hudson Motor Car Company Museum are numerous dealership signs, a Hudson parts room, a restored glass globed “Hudson Regular” fuel pump, a restored 1937 Hudson Sedan 7 scale model and a significant display of Hudson-Essex-Terraplane memorabilia (clocks, sales aides, matchbooks, factory photos, employee awards, etc.). Also on display is a twin carbureted 997.8 cubic inch six cylinder Hudson Invader 168 gasoline engine manufactured by Hudson during World War II to power landing craft and crash boats.

The Kaiser-Frazer Corporation was a partnership between automotive executive Joseph Frazer and industrialist Henry Kaiser that built cars at Ypsilanti’s former Willow Run B-24 aircraft plant from 1947 through 1951 when Frazer left the company. Kaiser continued to build cars under the Kaiser nameplate through 1955. Several 50-51 Kaisers, Frazers and Henry Js are on display along with a new old stock Kaiser body in red primer on a factory paint booth support. Also on display is a fiberglass bodied 1953 Kaiser Darrin sports car. Kaiser bought the Willys-

Overland company in 1953 and created the Kaiser-Willys Corporation. From 1956 on the Kaiser-Willys Corporation built jeep style utility vehicles. The Willow Run facility was sold to General Motors in 1953 and Kaiser production moved to Toledo, Ohio.

The Tucker automobile connection to Ypsilanti is the Tucker’s family business, Ypsilanti Machine and Tool, and Preston Tucker’s home were in Ypsilanti, and early work on the Tucker prototype was done in Ypsilanti. The Museum displays numerous Tucker related materials (photos, drawings, stock, sales contracts, etc.) and one of the three Tucker automobile movie props used in the 1988 movie “Tucker, The Man and His Dream”.

GM had automobile manufacturing facilities at the former Willow Run aircraft plant in Ypsilanti between 1956 and 1993. The automobile manufacturing included large special order Chevrolet trucks between 1956 and 58; the Corvair between 1959 and 1969; and Novas, Venturas, Omegas and Skylarks between 1970 and 1980. In 1980 the plant was converted to GM’s front wheel drive X series cars, and also built the front wheel drive Pontiac Bonneville and Oldsmobile Delta 88. Before closing in 1993, the 1991 to 1993 Chevrolet Caprice sedans and station wagons, and similar Buick and Oldsmobile station wagons were produced at the Willow Run plant. There are presently 2 Novas and 4 Corvairs on display along with a wall of photos, plant production statistics and employee commendations.

GM also had transmission manufacturing facilities in the former Kaiser Frazer plant in Ypsilanti between 1953 and 2010. General Motors acquired Kaiser’s Willow Run facility in 1953 to re-start production of their Hydra-matic transmissions after the almost complete fire loss of their almost new Livonia Michigan facility due to a fire. Over the decades GM built 83 million Hydra-matic transmissions in 12 different versions for GM’s Divisions and 11 other automobile manufacturers. Numerous cutaways are displayed along with posters showing specifications and comparisons of the 12 Hydra-matic versions. Quaint, small and rustic, the Ypsilanti Automotive Heritage Museum has a little something for almost everyone. Depending on how much information you want to absorb you can spend anywhere from one hour to four, or more, hours touring the facility. Generally open 1:00 to 4:00 Tuesdays through Saturday. Admission is \$5.00. Well worth the time if you are in the area.

A couple of notable items found wandering the Museum. Commerce trucks were built in the former Apex Motors plant in 1926 and 1927 before Commerce was purchased by Relay truck and moved to Wabash, Indiana. One wall of the building is dedicated to Ypsilanti car and truck dealership history. The wall has signs, photos, and news clippings of the dealership marques and changes in brands over the years. At the top of the wall is a 3 foot by 30 foot painted wood sign with painted raised wood letters advertising the Joseph H. Thompson Dodge Brothers Cars and Dodge Brothers Trucks which would look good in any of our garages.



**HUDSON**

**HARP**

**HUDSON APPROVED  
RECONDITIONING PROCEDURE**

*For the finest in Used Cars!*

1. Clean Engine and Chassis	8. Check Electrical System - Repair if necessary
2. Clean Interior and Trunk	9. Check Tires - Regroove or Replace if necessary
3. Tune and Adjust Motor	10. Wash Car
4. Lubricate	11. Repair Body and Paint if necessary
5. Road Test	12. Polish
6. Write Complete Repair Order	13. Interior Appearance Recondition
7. Perform Minor Mechanical Adjustments and Repairs. Major overhaul if necessary	





# The Gold Bulldog

*George Barrett*

The gold bull dog is fifty years old. I remember when I first read about it that it sounded like a great idea and now I think it was one of the greatest innovations in automotive engine developments ever. I can't remember where or when I first heard of it but John Montville's book says that Mack engineers had been experimenting for seven years before they announced in late 1966 that the new Maxidyne Engine would be available soon.

As I went about my work in 1967 I'd ask the contractors who ran Macks what they thought of the new "constant horsepower" design, wondering what the Mack salesmen were telling prospective customers. I got answers like "looks good on paper," "I don't see how it can work with just a five speed," "needs a low hole," "may be OK for a highway rig," and "don't know that it will be any good in the construction business"

I was doing a lot of business with Dragon Cement with regard to quarry and maintenance equipment and one day Henry, the maintenance superintendent mentioned they were getting a new fleet of highway trucks. At the time they were running B-61 Macks leased from Burkley Leasing (I think that was was on the cab), I think there were 18 trucks, all well taken care of. The new trucks would be R-600s with the new Maxidyne.

Back in the 1960s if a truck were in front of you your immediate reaction was to pass it, especially if it was a Mack, they appeared to be the slowest. Other brands might have a big Cummins, many of the General Motors brand had a "318" 8V-71. Upon arriving in Maine in 1965 I soon realized that there was no need to pass those gray Macks going up route one to Rockland empty. Those drivers knew the road and got every bit of performance out the B-61s. After the new Maxidynes hit the road speed was much better but the talk going around was how well they went over the hill in Waldoboro, loaded going south in third gear. Getting the following information of the topographic map the hill is 1.6 miles with a rise of 270 feet which is an average adverse grade of 3.2%. There's a quarter mile run that I measured out as a 7% grade. The speed before starting up was variable because of the intersections but back then there was no traffic light like there is today.

So what has this got to do with a gold bulldog? Fifty years ago Mack put a gold bulldog on the hood to signify that under the hood was a Maxidyne engine with a Maxitorque transmission behind it. As this set-up gained a good reputation I started to see more gold dogs on the hood. After asking a few questions I learned that guys were buying a gold dog and removing the chrome one so there was no way to tell without tilting to hood what the power plant was. The package was a success, by August 22, 1972 the Allentown plant turned out the 50,000th chassis equipped with a Maxidyne engine.

The actual model number of the engine is ENDT 675, six cylinder in line with the same usual bore and

stroke as previously popular engines with a displacement of 672 cubic inches. It was, however, an entirely new design, made stronger to stand up to a the longer use of sustained horsepower.

The five speed transmission was also a new design with a triple countershaft so it could be shorter and weigh less. The formal name of the transmission is Mack Maxitorque TRL 107 and when coupled with the engine Mack called it a balanced design.

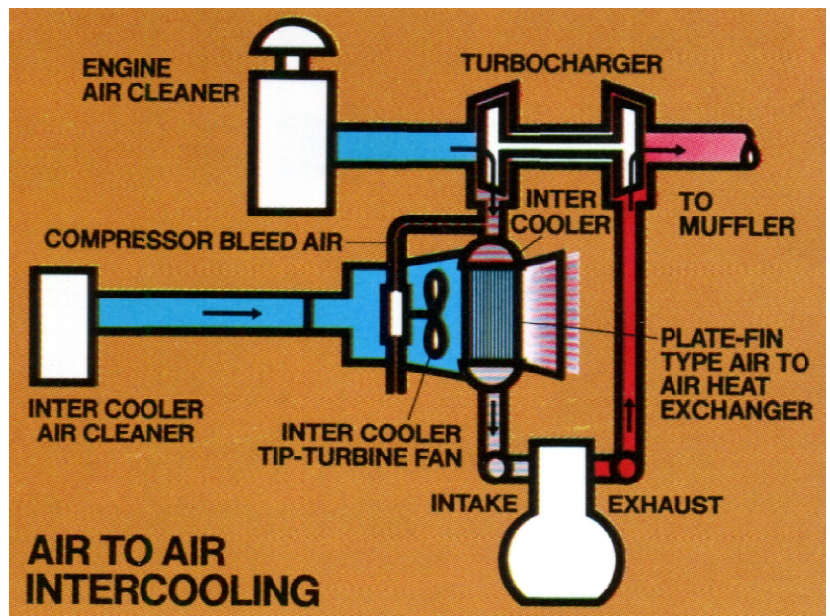
Of course it wasn't long before other engine brands came out with a similar product and the term "high torque rise" became widely known. By 1970 Mack introduced a 325 horsepower V-8 and a new series of Maxitorque transmissions for over the road as well as dumper and mixer applications. Also offered at this time with the new ENDT 865 V-8 diesel was a simplified engine-compression brake system called the Mack Dynatard.

The following page shows the front of a four page brochure dated 9-67 introducing the first high torque rise engine.

Page 6 shows the transmission designed for the new Maxidyne engine on the upper portion. Below that are the shifting pattern and the gear ratios for a Mack quad box. I have arranged the sequence from the highest ratio to the lowest.

Page 7 shows the engine that went into production on June 1, 1973 just as both gasoline and diesel fuel were becoming scarce and more costly.

Below I have enlarged the air intake design of the 1973 engine because this is the center of activity for the Maxidyne system. Initially Mack made a big deal about calling what every other manufacturer called an after cooler an intercooler. Nevertheless, the idea of controlling the speed of the exhaust driven compressor to boost torque was, in my opinion, a very smart idea and it seemed to work very well as soon as drivers could be trained to resist shifting down too soon.



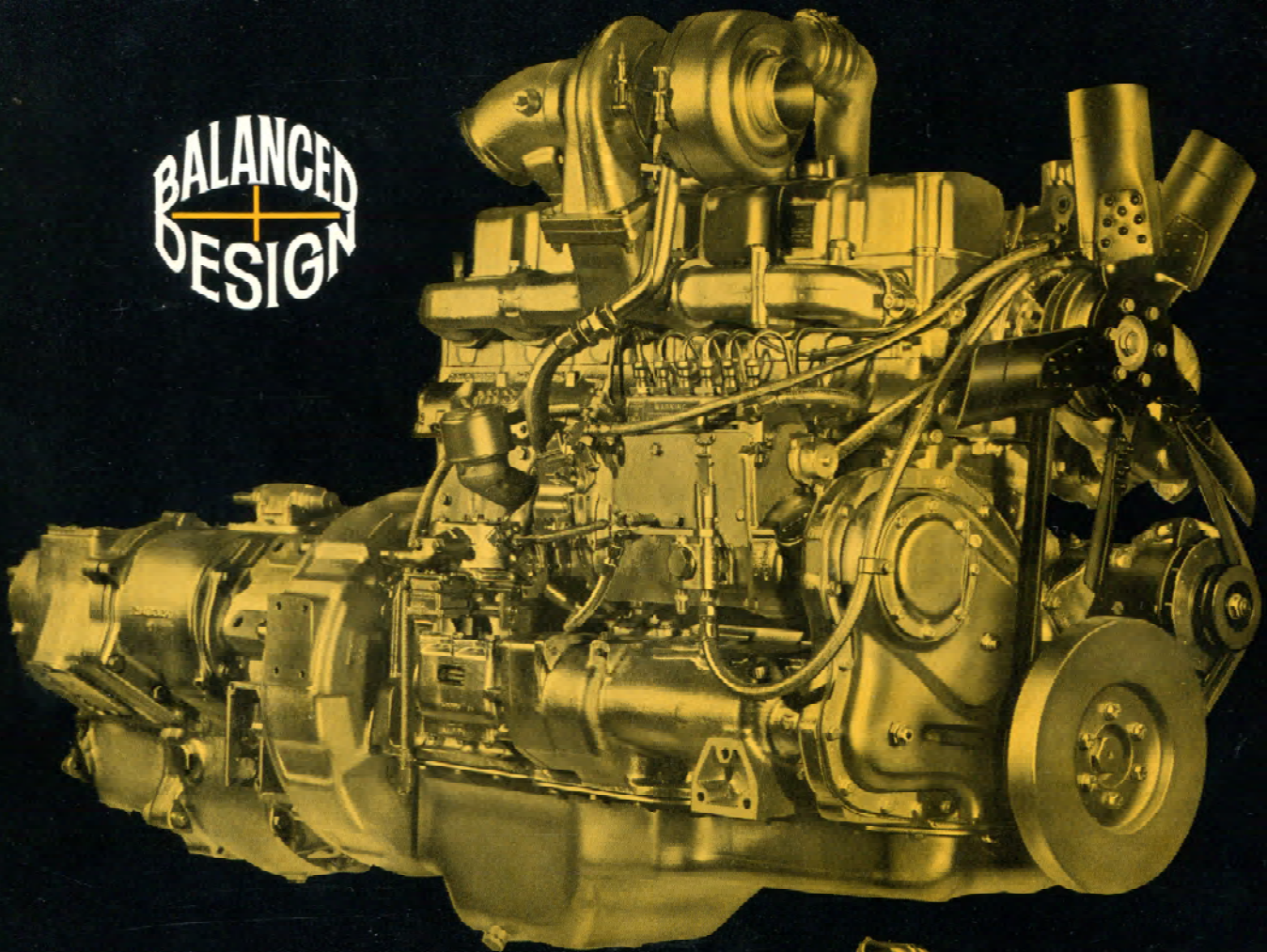




# **NEW** **maxidyne<sup>®</sup>** **ENDT 675 ENGINE**

**AND 5 SPEED-TRIPLE COUNTERSHAFT TRL 107 MAXITORQUE TRANSMISSION**

**BALANCED  
DESIGN**



**SIX CYLINDER  
FOUR CYCLE DIESEL**

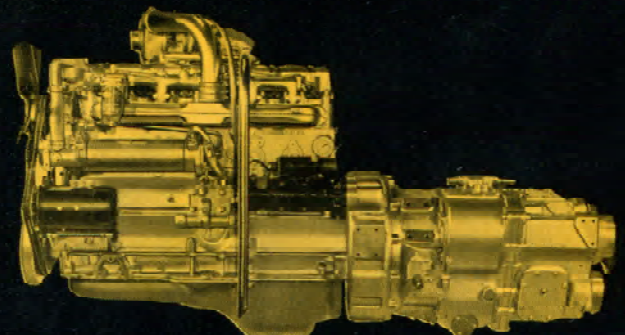
**CONSTANT HORSEPOWER  
OVER A WIDE RANGE OF  
ENGINE & ROAD SPEEDS**

**ULTIMATE TURBOCHARGER  
CHARACTERISTICS**

● **REDUCED SHIFTING  
REQUIREMENTS**

● **INCREASED ALL-AROUND  
OPERATING EFFICIENCY**

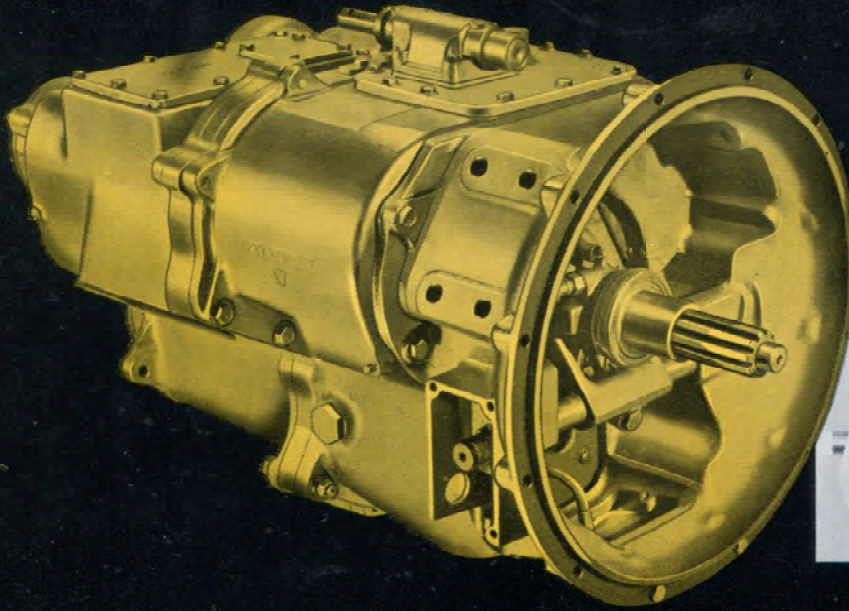
● **LOWER INTERNAL  
TEMPERATURES**



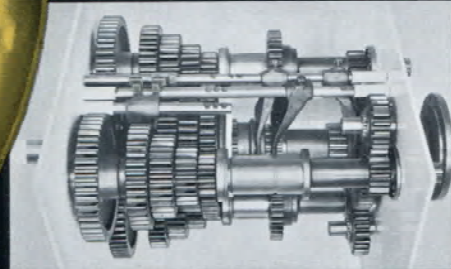
**MACK TRUCKS, INC.**



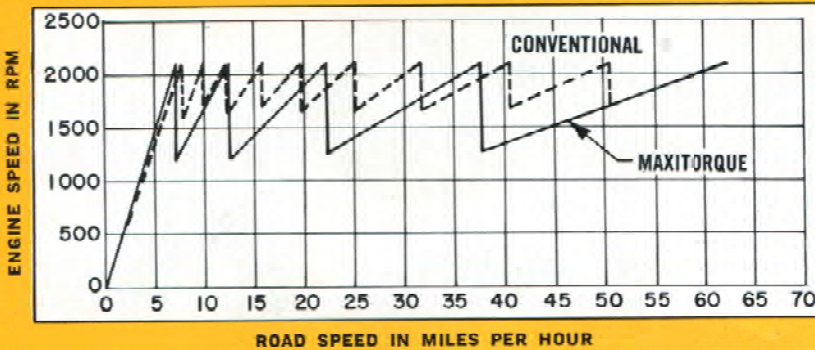
# MACK MAXITORQUE TRL 107



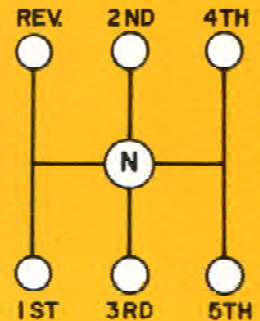
**BALANCED  
DESIGN**



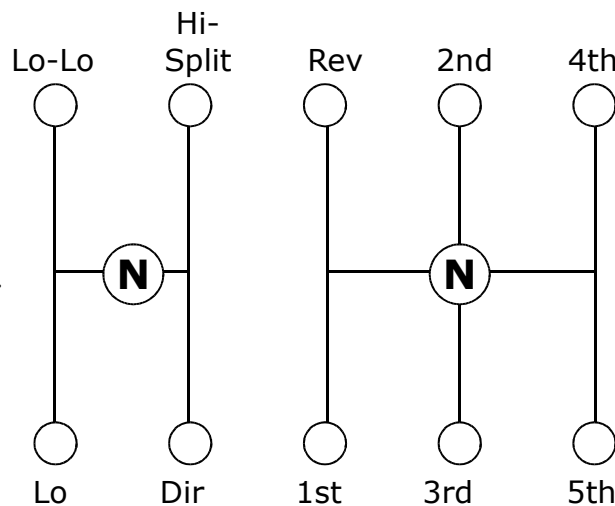
SHIFT COMPARISON



The adjacent shift chart compares an average ten-speed transmission with the new Mack "Maxitorque". Note the TRL107 has five evenly spaced steps to cover the same speed range and takes full advantage of the horsepower and torque of the "Maxidyne". Far less shifts are required to accomplish the same purpose.



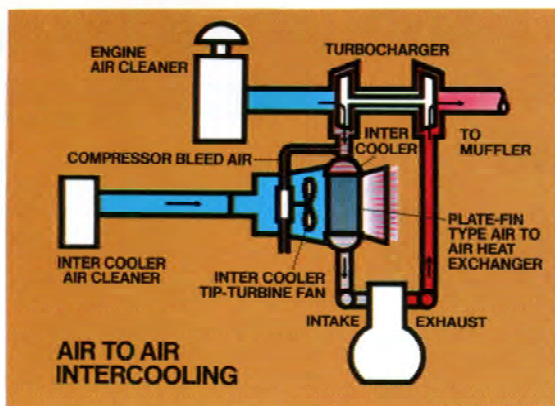
MACK TRANSMISSION MODEL TRQ 72  
Two-lever Quadruplex  
Twenty Forward Speeds, Four Reverse  
*from Mack Spec. Sheet 4-56-2M-C.P.*



*So which way do you go?*

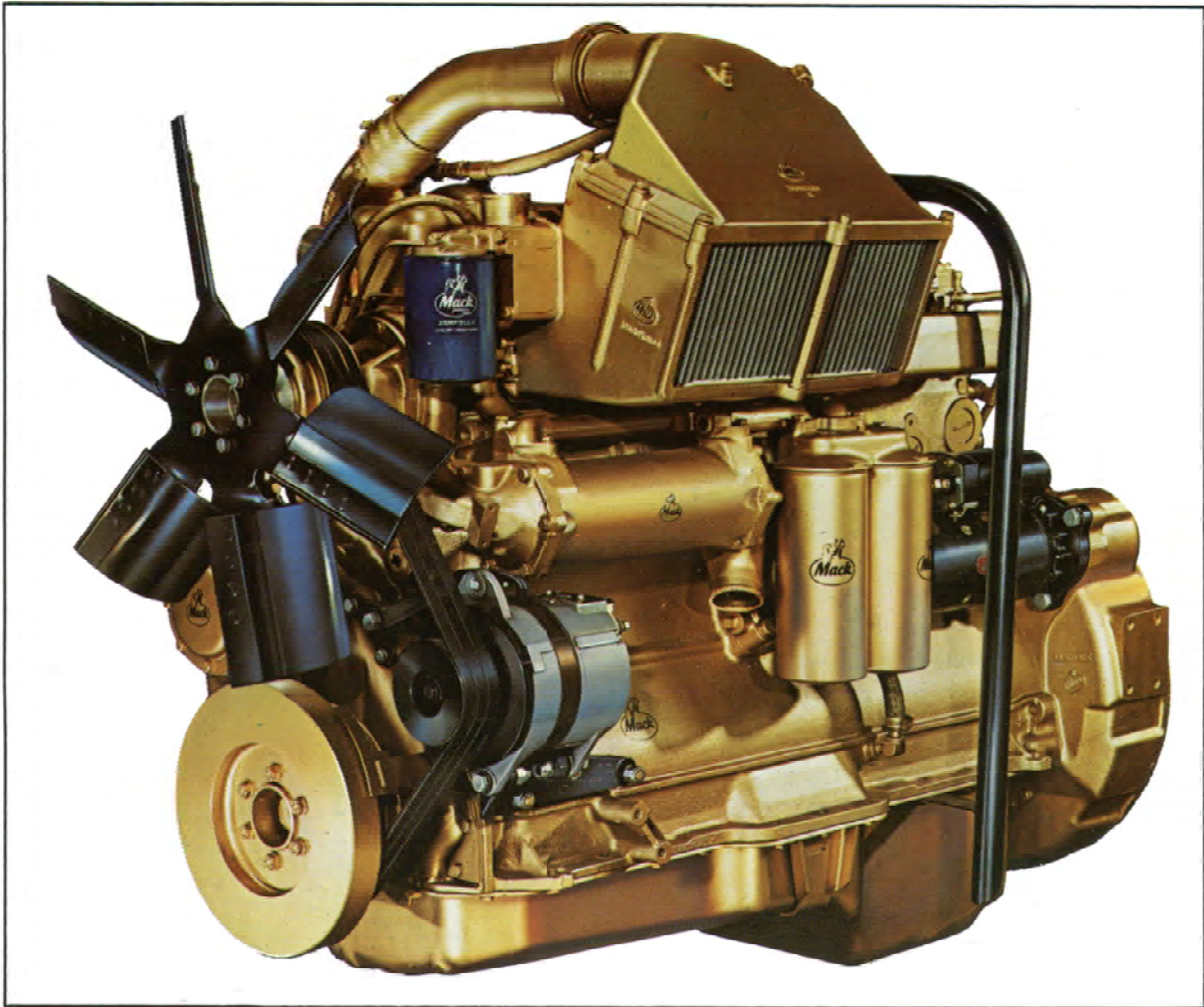
*The new way above, or do you need the twenty speeds forward of the old reliable quad box?*

5th	high split	0.85
5th	direct	1.00
5th	low split	1.18
4th	high split	1.38
4th	direct	1.62
4th	low split	1.91
3rd	high split	2.22
5th	low low	2.52
3rd	direct	2.60
3rd	low split	3.07
2nd	high split	3.68
4th	low low	4.08
2nd	direct	4.32
2nd	low split	5.09
1st	high split	6.42
3rd	low low	6.56
1st	direct	7.53
1st	low split	8.88
2nd	low low	10.88
1st	low low	18.96



## World's first air-to-air intercooling system for highway truck diesel engines

The air-to-air intercooling system of the Maxidyne 300 Series engine provides a lower inlet manifold temperature than that achieved by conventional water-to-air intercooling. The Mack intercooler minimizes overall heat load and cooling requirements of the base engine cooling system. The entire intercooler can be lifted out for cleaning if necessary. Here is one more way Mack offers you a more productive truck investment.



## The Maxidyne 300 Series six-cylinder engine is cool, quiet, light, and a real fuel saver

Here is the third member of the Maxidyne family, designed and built on the unexcelled performance of over 115,000 Maxidyne engines earning their way today.

A revolutionary new feature offered by the Maxidyne 300 Series is Mack's new air-to-air intercooling system. This system reduces the temperature of the charge air from the turbocharger before it enters the engine.

The 300 Series' 53% high-torque-rise engine in combination with the 5-speed Maxitorque transmission results in less shifting, less fuel consumption.

In recent road tests at 55 mph., conducted by an independent laboratory, the 300 Series engine demonstrated a fuel savings of 12.8% over competitive engines tested. As in all other Maxidyne engines, this engine produces almost constant horsepower throughout its operating range. Total operating cost per mile is one of the best there is for engines in this horsepower category.

The 300 Series continues the Maxidyne tradition of a quiet engine... quiet inside and outside the cab (as measured under standard SAE test conditions).

## 2017 COMING SHOWS AND EVENTS

**Sunday March 19, 2017 PTC Annual Meeting** At the Owls Head Transportation Museum, Pot-Luck lunch at 11:30, meeting after

**Sun May 7 ATCA South Deerfield, MA**

**Saturday May 20 Yarmouth Public Works Garage** would like to display old trucks 9:00 - 1:00, Free Food, part of National Public Works week. Contact Erik S. Street, Director of Public Works, Town of Yarmouth 207-846-2401

**Saturday April 29 George Sprowl's Open House**

**Sunday May 21 Owls Head Transportation Museum Tour**

**Thurs - Sat. May 25 - 27 ATHS National Convention Des Moines, Iowa**

**Sat & Sun June 10 & 11 ATCA Bethlehem, CT**

**Sat & Sun June 16 & 17 ATCA Macungie, PA**

**Saturday June 24th Springtime Truck and Tractor Show** Lincoln, ME from 9am to 3pm. The Show is returning to it's original location, The S&S trailer lot at the corner of the Access road and the Chester Road.

**Sunday June 25 ATHS Brooklyn, CT**

**Saturday July 1 Boothbay Railway Village** Antique Engine Meet with MAPA and Pinetree Boating Club

**Sat & Sun July 15 & 16 Boothbay Railway Village** Antique Auto Days with the MOALS

**Sat & Sun July 22 & 23 Owls Head Transportation Museum** Truck Show

**Saturday Aug 5 ATHS Green Mt Chapter, Bellows Falls, VT**

**Fri - Sun Aug 4 - 6 Rockbusters Plainfield, CT**

**Sunday Aug 20 Barrington at Hillsborough, NH**

**Sat - Sun September 30 - October 1 Lititz, PA** Gerhart's

**Monday October 9 ATHS Pioneer Valley Westfield, MA**

**Sunday October 15 ATCA Bolton Fairgrounds, Rt.117 Lancaster, MA** 8:00 -3:00 contact Bill Semple 978-460-0465, Trucks can be delivered Saturday, Parking for self-contained motor homes, Vendors, Food Available, Dash Plaques, No ATV's, No Dogs, Truck Registration \$10.00

### Pine Tree Chapter Annual Meeting

*Sunday, March 19, 2017*

**OWLS HEAD TRANSPORTATION MUSEUM**

*Meet new friends, catch up with old friends, tour the museum*

*Vote on Budget, Directors, and Activities*

*Plenty of Food and Laughs at a Wonderful Museum*



## Obituary for a Pine Tree Chapter member

POWNAL - Carl I. Knight, 85, a life-long resident of Pownal, passed away Saturday, Sept. 10, 2016. He was born in Freeport on Jan. 9, 1931, to Charles Knight Jr. and Wilma Richards Knight. Carl attended North Yarmouth Academy.

Carl worked in trucking for many years and was Pownal's Road Commissioner for 23 years, retiring in 1987. He was a life member of the Improved Order of Red Men and the Owl's Head Museum, and a member of three antique automobile clubs. His passion was collecting and restoring antique cars and trucks. In his later years, he enjoyed being taken for rides around the back roads of Maine and having his daily coffee with his buddy, Cecil Burt.

He is survived by his wife of 65 years, Jean Pervier Knight; daughters, Gail Knight Purinton and her husband Dean of Durham, and Wanda Haddock, of New Gloucester; four grandchildren and three great-grandchildren; and sister, Josephine Vosmus.

There are no visiting hours scheduled. Friends and family are invited to attend a funeral service Friday, Sept. 16, at 11 a.m. at the First Parish Congregational Church, Hallowell Road, in Pownal. Interment will be at Elmwood Cemetery in Pownal at a later date.

## Classified Ads

**For Sale:** 1977 International Transtar II 4070B single axle (4.44 ratio), Cummins NTC 300 Magnum, Roadranger RTO 9513, sleeper cab with rare rear window option, equipped with "Link Cab Mate" cab air ride, recently repainted in bright red with white stripes, sharp looking nice driving truck. \$15,000 contact Bill Mullin (207) 799-0846.

**For Sale:** 1954/ 55 First Series Chevrolet 6800 with restorable Wayne bus body. Cowl and front end sheet metal rough; running gear unknown. Former L.F. Martin school bus used in North Raymond. Truck is in New Gloucester. Owner asking scrap value for vehicle. Would prefer it not be scrapped. Contact C Hoak (207-522-7088) for pictures. Contact Eric Dacy at 207-926-3752 to view/ purchase.

*Please contact me with any for sale or wanted items and I'll be sure there's enough space allotted for all.*

*George Barrett 207-829-5134 or sheepscot@zwi.net*

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**President - Jamie Mason** 104 Falmouth Road, Falmouth, ME 04105; (207) 949-1360; email:haroldjmason@gmail.com

**Vice President - Peter Mullin** 200 Stanford Street, South Portland, ME; 04106 (207) 767-6080; email: wfd44@maine.rr.com

**Secretary - Diane Munsey**, Rusty Fender Estates 785 River Road, Dresden, ME 04342; (207) 737-2997; email: munsandi@gmail.com

**Treasurer - Cheryl Billings** 1031 Pinkham Brook Rd. Durham, ME 04222 (207) 353-7209; email:cherylbillings55@gmail.com

**Director - George Barrett** 2 Country Charm Rd. Cumberland, ME 04021; (207) 829-5134 cell 671-2666; email: sheepscot@zwi.net

**Director - Steve Corson** 163 Main St., Rockport, ME 04856 207 -236-8886, cell 207-542-4192 email: blackdogmack@gmail.com

**Director - John Ellingwood Jr.** Cell (207) 590-2298; email: jellin@sacoriver.net

**Director - Lars Ohman** 6 Antique Drive, Sabattus, ME 04280 cell 207-376-7993 email: peckapohl@roadrunner.com

**Director - Bob Stackpole**, 446 River Rd, Cushing, ME 04563 207-354-2372 email: stack123@roadrunner.com

### **DUES NOTICE - Membership Renewal & Update Form**

Please sign me up for another years worth of membership in the Pine Tree Chapter, ATHS.

Membership in the American Truck Historical Society is required.

Name \_\_\_\_\_ Date \_\_\_\_\_

Street \_\_\_\_\_ Phone (     ) \_\_\_\_\_

City \_\_\_\_\_ E-Mail \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

**Pine Tree Chapter Dues of \$10.00 run from January to December.**

### **Mail to: Pine Tree Chapter ATHS**

C/O Jamie Mason  
104 Falmouth Road  
Falmouth, Maine 04105

Pine Tree Chapter ATHS  
c/o George Barrett  
2 Country Charm Rd.  
Cumberland, ME 04021

Jon Doyle's beautiful FWD leaving the Owls Head Truck show on Sunday afternoon with Terry at the wheel. After working many winters in Maine it has been restored and kept in the condition of a new truck. We thank you Jon and Terry for letting us all see it on a beautiful warm weekend.

