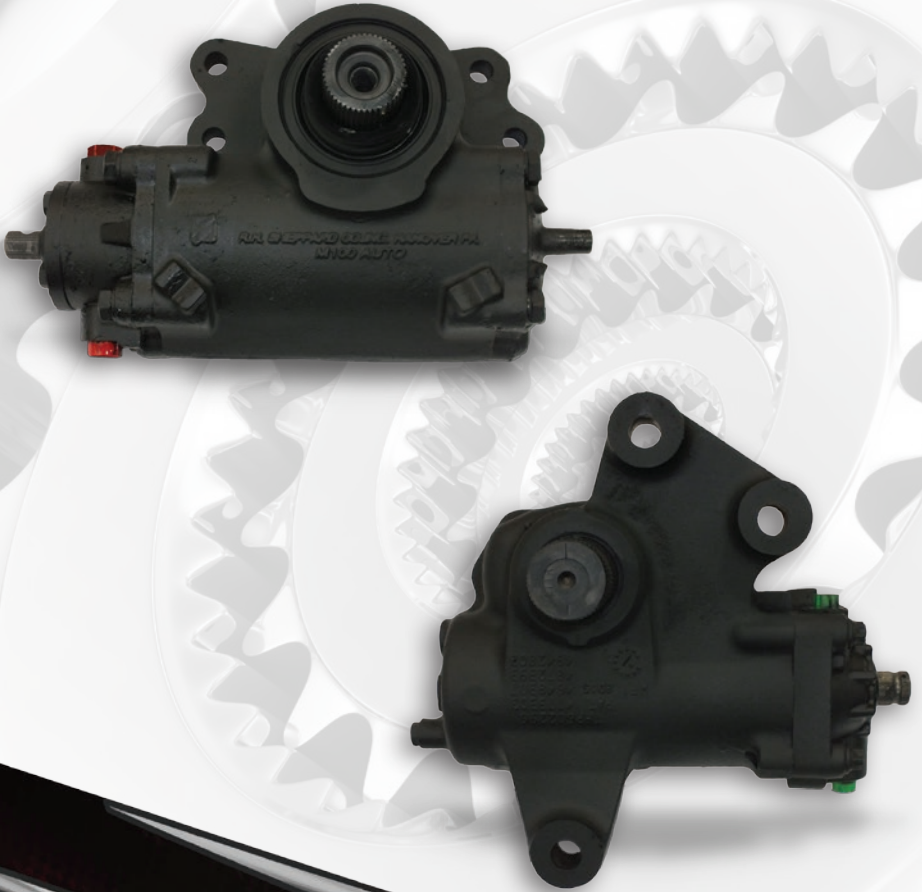


WELLER

100% Associate Owned



**OWNER'S MANUAL:
STEERING**

Tag # _____

Mileage In: _____

Date Installed: _____

WELLER REMAN

Quality Remanufactured



Manual Transmissions and Transfer Cases

Quality Remanufactured Products by WELLER for the Following Applications

Light to Heavy Duty

Eaton/Fuller • Borg Warner • New Process • Clark • IHC • TTC Spicer • Isuzu • GMC • Mack • Noster • ZF • Meritor

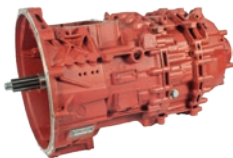
A complete line of Auxiliaries and Transfer Cases



Automated Manual Transmissions

Quality Remanufactured Products by WELLER for the Following Applications

ZF AS-Tronic® • Meritor Freedomline® • Volvo I-Shift® • Mack M Drive® • Eaton/Fuller • Detroit DT 12



Automatic Transmissions

Quality Remanufactured Products by WELLER for the Following Applications

Allison Transmissions® • Clark • Funk • CAT • ZF



Differentials

Quality Remanufactured Products by WELLER for the Following Applications

Complete Stock for quick exchange.

Spicer • Clark • FWD • GMC • IHC • Industrial/Off Road • Mack/PAI • Dana/Eaton • Terex • Freightliner/Alliance • Meritor /Rockwell • Volvo



Steering Gear Boxes and Pumps

Quality Remanufactured Products by WELLER for the Following Applications

All units are tested on our state-of-the-art XLT3 Road Simulator.

TRW-Ross • Saginaw • Sheppard • Vickers Pumps • ZF • Eaton • Luk



Electronics

Quality Remanufactured Products by WELLER for the Following Applications All units are tested for performance and quality.

Cummins • Eaton/Fuller • ZF • Allison® • Volvo





THE WELLER WAY



If your company focuses on quality repairs and parts, we would like to put our 950 people on your team! Together we can eliminate downtime with complete coverage of all your drivetrain needs. That's the Weller Way – to partner in select relationships that successfully provide the customer with the best product and service. No hype! Just a true competitive advantage!

With 400,000 square feet in Grand Rapids at our remanufacturing centers and extensive warehousing at our PDC locations dedicated to drivetrain, we are committed to the industry. Through our commitment to focus solely on drivetrain components, we have been able to partner with industry leaders. These partnerships put the best product available in the hands of the company that needs it most!

Interested in becoming a key partner in our Reman Program? Contact us today! With no commitments and no minimums, we are the Industry Partner for you!

Weller APP



Check Out Our New App!



We are excited to announce our new app! Designed with our customers in mind, we wanted to bring a user-friendly way for you to access the information you need when you need it most.

Features

Schedule a Core Return: Easily schedule core returns from your phone!

View Warranty Status: Have a warranty you want to know the status of? View all of your warranties with the Warranty Tracker.

Quickly Locate a Store: We are always adding new locations to better serve you.

Weller Literature: Find our Owner's Manuals and other sales literature like our Core Return Program and sales catalogs

Training Videos: Visit our growing collection of videos designed to educate and prevent common issues across a wide range of our products.

How to Download

The new Weller Truck Parts app can be downloaded for free from the Apple App Store and Google Play.

Supported devices include iPhone (iOS 11.0 or later) and Android smartphones (5.0 Lollipop and up).



PROGRAM DESCRIPTION



Weller's Unit Exchange program eliminates down time by getting you the parts you need when you need them. With over 7,000 remanufactured steering gears and pumps ready to ship, we can help you eliminate downtime. Consider becoming a key partner in the industry's leading steering program today. With no commitments and no minimums, we are the industry partner for you!

Our aggressive reman program includes:

- All Makes Coverage – One Call
- Same Day Shipping/Delivery
- Technical Support
- One-year warranty

WELLER REMAN HAS THE ADVANTAGE!

THE WELLER REMAN NETWORK

DYNO TESTING



All rebuilt steering gears and pumps are tested for performance and leakage.



FLUSHING INSTRUCTIONS

STEERING GEAR AND PUMP FLUSHING INSTRUCTIONS

To ensure that your new/reman steering gear/pump will operate properly, the following steps should be made to flush your entire steering systems completely.

1. Disconnect the return line from the gear at the point it is attached to the reservoir. Direct the return line into a minimum 2 gallon container. Temporarily plug reservoir return port tube or fitting. Fill reservoir with recommended fluid. Disconnect ignition system. Jack front wheels up from floor. Restrain vehicle with safety blocks. Engage starter motor and turn wheels simultaneously to full travel until oil is no longer pumped. Unplug reservoir return port tube or fitting. Reconnect return line to reservoir. Remove contaminated oil filter, if so equipped. Wipe reservoir clean with a clean shop towel. Replace oil filter. Fill reservoir to capacity. Reconnect ignition system. Start engine and run for 30 seconds. Shut engine off.
2. Fill (or refill) the pump reservoir to the cold fill mark or just enough to cover the internal filter with the manufacturer's recommended fluid.
3. Start the engine and let run at idle speed for a couple of minutes. Cycle the steering wheel a few times to eliminate entrapped air. For pumps having dipstick showing hot full only, allow the truck to reach operating temperature before stopping the engine. For units with cold fill marks, the engine may be stopped after cycling. Fill to indicated levels on sight gauge or dipstick, (depending on the model).

NOTES

ADJUSTMENT PROCEDURES



AUTOMATIC POPPET ADJUSTMENT PROCEDURE

For TRW (all TAS and THP models), ZF (all models), Sheppard (all HD, MD, SD, and XD models), and Sheppard M-SERIES models (M80, M90, M100, and M110) with a part number ending in 3 (examples: M100 PHE3 and M110 PHC3).

WARNING! DO NOT TURN OR ROTATE THE STEERING GEAR UNTIL STEPS 1 THROUGH 9 ARE COMPLETED TO ENSURE PROPER ADJUSTMENT!

Adjusting the relief valve plungers is critical to the operation of your complete steering system. The relief plunger adjustment is provided to automatically reduce the steering pressure when the road wheels have reached their limits of turn. This keeps the supply pump from operating at maximum relief pressure when the road wheels are at their steering limits. System temperatures are therefore reduced, and high stress loads on the mechanical components of the steering systems are relieved.

1. Ensure that the steering gear is not rotated from the center position prior to installation.
2. Make sure that the axle stops are present and set for the proper turning radius as per manufacturer's specifications.
3. Install steering gear to frame.
4. Attach and torque input yoke. Connect hydraulic hoses.
5. Attach pitman arm and torque nut and bolt assembly.
6. Make sure that the timing mark on the sector shaft is:
 - A. 90 degrees from center line of worm shaft.
 - B. Properly aligned with the mark on the pitman arm.
7. Make sure the pitman arm positioning allows for the center point of the sector and the center point of the drag link to be plumb with each other.
8. With the wheels square to the frame, check the drag link for proper adjustment and install.
9. Once system is flushed (see p. 6) then fill reservoir, start engine, and allow to idle only. Do not allow the reservoir to run low on fluid.
10. With the front axle lifted off the ground and the engine at idle, turn the steering wheel all the way in one direction until "steering stops" bottom out. Repeat procedure in the opposite direction. Return wheels to straight ahead. Lower front axle back to the ground.
11. Poppets are now set and any remaining air should be bled.



ADJUSTMENT PROCEDURES

MANUAL POPPET ADJUSTMENT PROCEDURE

For TRW (all HF and HFB models), Sheppard (292, 392, 492, and 592 models) and M-SERIES models (M80, M90, M100, and M110) with a part number ending in a 1 (examples: M100 PCL1 and M110 PHM1).

WARNING! DO NOT TURN OR ROTATE THE STEERING GEAR UNTIL STEPS 1 THROUGH 9 ARE COMPLETED TO ENSURE PROPER ADJUSTMENT!

Adjusting the relief valve plungers is critical to the operation of your complete steering system. The relief plunger adjustment is provided to automatically reduce the steering pressure when the road wheels have reached their limits of turn. This keeps the supply pump from operating at maximum relief pressure when the road wheels are at their steering limits. Systems temperatures are therefore reduced, and high stress loads on the mechanical components of the steering system are relieved.

Adjust the relief valve plunger as follows:

1. Ensure that the steering gear is not rotated from the center position prior to installation.
2. Make sure that the axle stops are present and set for the proper turning radius as per manufacturer's specifications.
3. Install steering gear to frame.
4. Attach and torque input yoke. Connect hydraulic hoses.
5. Attach pitman arm and torque nut and bolt assembly.
6. Make sure that the timing mark on the sector shaft is:
 - A. 90 degrees from center line of worm shaft.
 - B. Properly aligned with the mark on the pitman arm.
7. Make sure the pitman arm positioning allows for the center point of the sector and the center point of the drag link to be plumb with each other.
8. With the wheels square to the frame, check the drag link for proper adjustment and install.
9. Once system is flushed (see p. 6) then fill reservoir, start engine, and allow to idle only. Do not allow the reservoir to run low on fluid.

ADJUSTMENT PROCEDURES



10. With full weight of the vehicle on all wheels, turn the steering wheel in one direction until a high pressure hiss is heard or the axle stops contact.
11. Turn the relief valve plunger located on both ends of gear in or out until the high-pressure hiss is heard when there is 1/8 to 3/16 inch clearance between the axle stops.
12. Repeat this procedure for the opposite direction of steer, and adjust the relief valve plunger on the opposite end of the steering gear.

Turning the plungers in too far will trip the relief before a full turn is realized. Turning the plungers out too far will not allow the systems to relieve, and will therefore cause damage. Do not turn the slotted plungers out beyond flush with the plunger boss or a leak will occur. Axle stops should only be adjusted in accordance with the vehicle manufacturer's specifications.

After the relief valve plunger adjustment, always check to ensure that the road wheels and tires have adequate clearance between suspension, brake and frame components.

BLEEDING THE SYSTEM



Standard



Inverted



When you air bleed a steering system, you are simply allowing air trapped in the cavities of the steering gear to escape. As a general rule, if your steering gear is a “standard mount”, you should use the Automatic Bleed method. The Automatic Bleed Method consists of step 10 and 11 in the Automatic Adjustment Procedure. If your gear is an “inverted mount”, you will need to use the Manual Bleed method to purge the trapped air from the gear.

Do not turn steering wheel with bleed screw loosened

CAUTION

- Make sure poppets are set correctly before beginning this procedure
- Find and correct the source air entry into the system before attempting these procedures. (Air can naturally enter the system when components are being removed or installed.)
- Do not allow the fluid level to drop significantly or run out of the reservoir during the entire procedure. This may introduce air into the system

1. Fill the reservoir nearly full. Do not steer. Start and run the engine for 10 seconds, then shut it off. Check and refill the reservoir. Repeat at least three times checking the oil every time.
2. Start the engine and let it idle for 2 minutes. Do not steer. Shut the engine off and check the fluid level in the reservoir. Refill as required.

BLEEDING THE SYSTEM

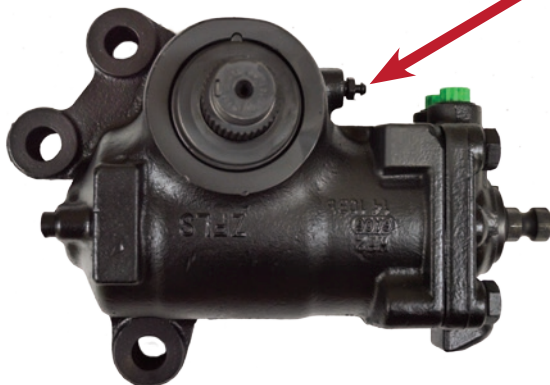


3. Start the engine again. Steer the vehicle from full left to full right several times. Add fluid as necessary, to the full line on the dip stick.
4. With engine idling, steer from full left turn to full right turn several times. Stop steering with the road wheels at straight ahead, and loosen the manual bleed screw 2-3 turns (in the main gear, or the rotary assist cylinder, or both if equipped). Allow air and aerated fluid to “bleed out” until only clear fluid is seen. Close the bleed screw, refill the reservoir if required.
5. Repeat step 4 three to four times until all the air is discharged.

TRW



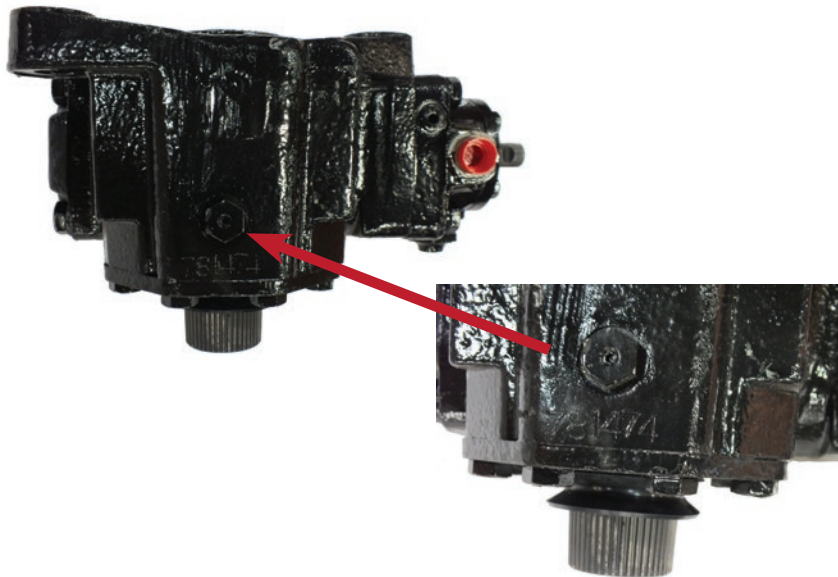
ZF



BLEEDING THE SYSTEM



Sheppard



Sheppard (Assist Gear Box)



CORE RETURN INSTRUCTIONS



The Weller Truck Parts core return program is designed to facilitate an efficient and cost effective way of returning your cores. Following the instructions listed below will ensure your core is processed quickly and correctly.

1. Attach the Core Return Tag provided with the remanufactured unit to core

- For warranty units, obtain a Warranty Repair Authorization (RA#) from your Weller Truck Representative. If you are not sure who your representative is call the Reman Center at 1-800-872-6697 or email warranty@wellertruck.com.

2. Prepare the unit for shipping.

1. Drain oil from unit.
2. Band, wrap, or strap unit(s) to a pallet.
3. Attach a copy of the warranty invoice, core tag or RA# to the unit for identification.

3. Notify Weller Shipping Department when unit is ready for pick up.

- Download the Weller App!
 - Scan the QR code or go to wellertruck.com/app
- Email corereturn@wellertruck.com or call 1-800-872-6697 Ext. 3794 or 3759
 - Provide the following:
 - ✓ Core return tag, Weller Truck Parts invoice, or the RA if the unit is a possible warranty
 - ✓ Your contact information
 - ✓ Hours of operation



Weller will prepare the bill of lading and schedule your unit to be picked up by a Weller approved carrier.

Thank you for choosing Weller Truck Parts!

Failure to follow these procedures could result in core credit delays and freight charge backs.

*Core eligibility is one year from invoice date



WELLER WARRANTY

WARRANTY STATEMENT

Warranty Coverage

Standard Warranty Coverage

Weller Reman Steering Gears – One year, unlimited mileage – parts and labor.

Authorized Repair Points – Our Nationwide Warranty may be administered only by an authorized warranty repair facility. Call 1-800-872-6697 for authorization.

Exclusions – Subject to the conditions stated herein, Weller warrants to the original retail purchaser thereof that its Reman products will, when used in a motor truck for on-highway or on/off-highway applications in the United States and properly installed and assembled on vehicles approved by the O.E.M. for such purpose, be and remain under normal conditions of use and operation free from failure due to defects in materials and workmanship from the date of sale.

This warranty covers parts and labor to repair or replace, at Weller's option, the failed Weller component. Units installed as replacements under this warranty are warranted only for the remainder of the original warranty period.

This warranty shall not extend to failures or damage due to improper lubrication or operation in excess of original design limitations, failure to follow normal published preventive maintenance guidelines of the O.E.M., abuse or damage by improper installation, casualty or shipment.

This warranty shall not extend to repairs for noise (including idle rattle), excessive operating temperature, transmission rear seal leakage, nor does it cover failures caused by engine, clutch, driveline; including transmission synchronizer pin breakage, or other truck components or system.

This warranty does not cover failures caused by a worn, damaged or defective part or component mounted to the unit by the dealer or retail purchaser, including without limitation, the transmission end yoke.

All warranty claims shall be made to Weller and shall be supported by satisfactory evidence in respect of the conditions stated herein. As a condition precedent to the allowance of such claims, the component or assembly involved shall, if requested by Weller, be returned prepaid to Weller for examination.

EXCEPT FOR THE EXPRESS WARRANTY STATED HEREIN, WELLER DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE FOREGOING IS THE LIMIT OF THE LIABILITY OF WELLER, AND IS THE EXCLUSIVE AND SOLE REMEDY OF THE PARTY TO WHOM THIS WARRANTY IS MADE. LIABILITY ON THE PART OF WELLER FOR DAMAGES, EXPRESSLY INCLUDING CONSEQUENTIAL DAMAGES IS DISCLAIMED.

This warranty may not be changed or modified in any way except in writing by Weller.

- **Nationwide**

- **One Year Coverage**

- **Unlimited Mileage**

Call Us!

800-872-6697

-for-

- **Technical Assistance**

- **Return Authorization**

Weller Warranty Procedure

Don't Buy the Paper. Buy the Performance. Weller Reman.

PRE-REPAIR

Verify Complaint, Collect Information & Determine Warranty Coverage

- Have the Weller Tag or Invoice Number ready when calling.
- Provide the Make/Model and vocation of the truck.
- Provide a detailed description of the problem
- Weller will issue a Repair Authorization #

UNIT REPAIR OPTIONS

#1. Service Repair

(In Place Fix)

Customer to determine failure/repair cost and get Weller Approval before work is started

#2. Weller Repair

(R&R)

Weller to determine failure/repair cost and get customer approval before work is started.

#3. Unit Replaced

(Exchange)

- Weller ships replacement unit
- Replacement unit is installed
- Truck is up and running
- Invoice your customer until warranty process is complete

Return Materials, Information & Images Required to Substantiate the Claim

Note: Only defects in materials and workmanship are considered warrantable.

Weller performs failure analysis and determines failure responsibility

Failure Analysis Not Complete

Invoice your Customer

Failure Analysis Complete

WARRANTY

- Complete the work
- Send the invoice to Weller. The Repair authorization # will become the purchase order #.
- Weller will pay agreed amount

NON-WARRANTY

- Invoice your Customer
- If non-warrantable failure, repair and invoice your customer.
 - Weller will invoice for unit repaired by Weller

CALL WELLER FIRST
800-872-6697

WELLER

100% Associate Owned

800.872.6697 • wellertruck.com

Date: _____

TAG #: _____

Claim Contact Information:	Vehicle Owner Information:	Truck Information:	
Name, Company, and Address: _____ _____ _____	Name, Company, and Address: _____ _____ _____	Make:	_____
Phone: _____	Phone: _____	Model:	_____
Fax: _____	Fax: _____	Mileage:	_____
E-Mail: _____	E-Mail: _____	Vocation:	_____
		Engine:	_____
		VIN:	_____

COMPLAINT

Fluid Leak:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Description of the Problem: _____ _____ _____ _____ _____ _____ _____
Shifting:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Noise:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Vibration:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Hard Steering:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Contamination:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No	

ADDITIONAL INFO

Change with Speed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Suspension Modified Recently?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Change with RPM?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Driveline in Phase?	<input type="checkbox"/> Yes <input type="checkbox"/> No
During Acceleration?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Engine Mounts Checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No
During Deceleration?	<input type="checkbox"/> Yes <input type="checkbox"/> No	King Pin Checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No
When Stationary?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Hydraulic Brakes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fluid at Proper Level?	<input type="checkbox"/> Yes <input type="checkbox"/> No	System Flushed & Filter Replaced?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fluid Clean?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Is the Unit Getting Hot?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Vehicle Towed?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Running PTO?	<input type="checkbox"/> Yes <input type="checkbox"/> No		

EMAIL TO: WARRANTY@WELLERTRUCK.COM
FAX TO: 616-365-5679, WELLER TRUCK PARTS WARRANTY

WELLER WARRANTY



Warranty

It is essential to contact Weller and start the claim prior to removing the steering gear from the vehicle for warranty consideration. Weller's technicians can assist with diagnosing the complaint to reduce downtime. If the steering gear failed, the unit will be filmed, documented, and warranty determined.

The following are the maximum flat rates for failures due to defective products or workmanship:

Steering	Flat Rate Credit
Pump	\$100
Steering Gear	\$200

Authorized Weller Dealers call for warranty labor hours guidelines.

Call Weller First!
1-800-872-6697



SERVICE RECORDS

Date	Mileage	Service Provider	Notes

THE WELLER REMAN NETWORK



Scan to
download
our mobile
app!



- 1 Reman Center**
1500 Gezon Pkwy S.W.
Grand Rapids, MI 49509
616-724-2000
800-872-6697
- 2 Atlanta, GA**
5007 Clark Howell Hwy.,
Suite A
Atlanta, GA 30349
404-768-9577
877-768-9577
- 3 Baltimore, MD**
899 Airport Park Rd., Ste. N
Glen Burnie, MD 21061
410-553-0443
877-550-0443
- 4 Birmingham, AL**
116 Total Solutions Way
Alabaster, AL 35007
205-685-0777
866-535-0777
- 5 Boise, ID**
8484 W. Victory Road
Boise, ID 83709
208-331-1061
888-331-1061
- 6 Boston, MA**
Auburn Industrial Park
9C Street, Suite 15B
Auburn, MA 01501
774-374-8015
888-739-7191
- 7 Chicago, IL**
14407 S Gougar Rd Ste 500
Lockport, IL 60491
708-974-9919
888-974-9319
- 8 Columbus, OH**
2885 International St.
Columbus, OH 43228
614-771-9500
866-771-9501
- 9 Dallas, TX**
3113 Skyway Circle N
Irving, TX 75038
972-258-0460
855-258-0460
- 10 Denver, CO**
11333 East 55th Ave Unit A
Denver, CO 80239
303-375-6633
833-375-6633
- 12 Detroit, MI**
29826 W. Eight Mile Road
Farmington Hills, MI 48336
248-473-1900
800-473-1905
- 12 Gaylord, MI**
353 Expressway Court
Gaylord, MI 49735
989-731-6700
888-731-6700
- 13 Houston, TX**
4549 Aldine Bender
Houston, TX 77032
281-442-8855
877-677-8855
- 14 Indianapolis, IN**
6903 E. 32nd St.
Indianapolis, IN 46226
317-547-3190
888-547-3190
- 15 Jacksonville, FL**
10330 Chedoak Court
Suite 205
Jacksonville, FL 32218
904-757-0777
888-474-0777
- 16 Kansas City, MO**
3824 N. Skiles Ave.
Kansas City, MO 64161
816-454-2237
844-341-4578
- 17 Las Vegas, NV**
2985 Coleman St., Suite 14
North Las Vegas, NV 89032
702-638-8222
866-764-8222
- 18 Los Angeles, CA**
9355 Cherry Ave.
Fontana, CA 92335
909-356-8322
877-356-8322
- 19 Lubbock, TX**
603 CR 7150
Lubbock, TX 79423
806-516-8112
844-389-1766
- 20 Memphis**
7520 Appling Center Dr.
Ste 102
Memphis, TN 38133
901-386-8604
833-270-3220
- 21 Milwaukee, WI**
8625 North 107th
Milwaukee, WI 53224
414-354-6400
877-354-6400
- 22 Minneapolis, MN**
3201 85th Avenue North
Brooklyn Park, MN 55443
763-424-3800
877-424-3802
- 23 Nashville, TN**
230 Molly Walton Drive
Hendersonville, TN 37075
615-264-2750
866-426-2750
- 24 Omaha, NE**
8623 S. 117th St.
LaVista, NE 68128
402-597-9000
855-597-9001
- 25 Phoenix, AZ**
702-638-8222
866-764-8222
- 26 Portland, OR**
13150-2 NE Airport Way
Portland, OR 97230
503-255-1924
888-839-9758
- 27 Sacramento**
1424 N Market Blvd. Unit 80
Sacramento, CA 95834
279-972-4170
888-553-9753
- 28 Salt Lake City, UT**
3450 W. California Ave.
Suite 400
Salt Lake City, UT 84104
801-886-0100
855-847-0100
- 29 Seattle, WA**
6408 South 196th Street
Kent, WA 98032
253-872-0321
877-572-0321
- 30 South Bend, IN**
3303 William Richardson Ct.
Suite 200
South Bend, IN 46628
574-237-1000
800-968-8860
- 31 St. Louis, MO**
2388 Chaffee Drive
Maryland Heights, MO
63146
314-692-2227
877-992-2227
- 32 Syracuse, NY**
4530 Morgan Place
Liverpool, NY 13090
315-457-7098
844-320-4288
- 33 Tampa, FL**
217 Hobbs Street
Suite 103
Tampa, FL 33619
813-685-6100
866-685-6109

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