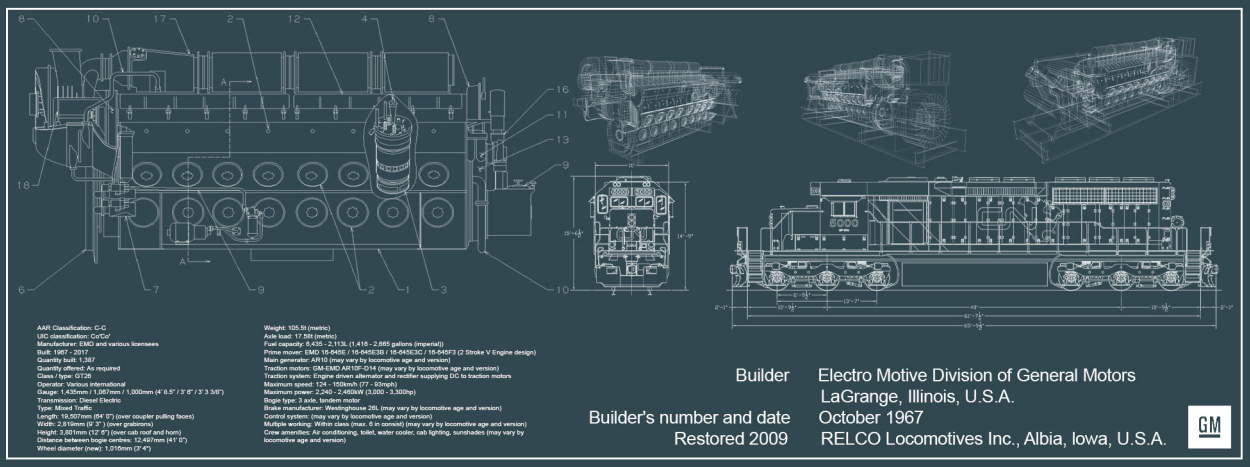
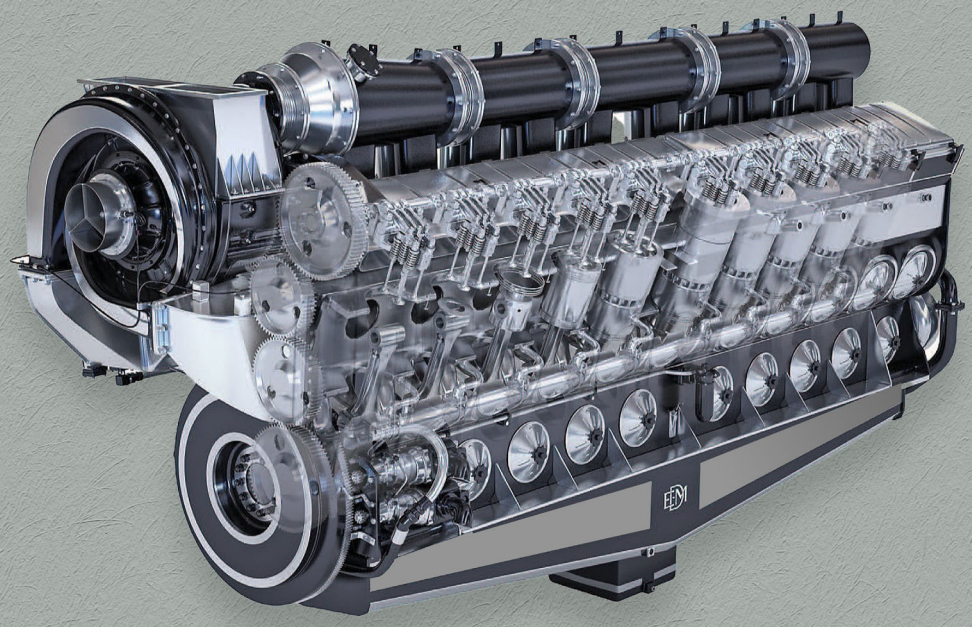
EMD DIESEL
ENGINE SPARE PARTS



AAR Classification: C-C
UIC classification: Co'Co'
Manufacturer: EMD and various licensees
Built: 1967 - 2017
Quantity built: 1,387
Quantity offered: As required
Class / type: GT26
Operator: Various international
Gauge: 1,435mm / 1,067mm / 1,000mm (4' 8.5" / 3' 6" / 3' 3 3/8")
Transmission: Diesel Electric
Type: Mixed Traffic
Length: 19,507mm (64' 0") (over coupler pulling faces)
Width: 2,819mm (9' 3") (over grabirons)
Height: 3,801mm (12' 6") (over cab roof and horn)
Distance between bogie centres: 12,497mm (41' 0")
Wheel diameter (new): 1,016mm (3'-4")

Weight: 105.5t (metric)
Axle load: 17.5tn (metric)
Fuel capacity: 8,435 - 2,113L (1,416 - 2,885 gallons (imperial))
Prime mover: EMD 16-645E / 16-645E3B / 16-645E3C / 16-645F3 (2 Stroke V Engine design)
Main generator: AR10 (may vary by locomotive age and version)
Traction motors: GM-EMD AR10F-D14 (may vary by locomotive age and version)
Traction system: Engine driven alternator and rectifier supplying DC to traction motors
Maximum speed: 124 - 150km/h (77 - 93mph)
Maximum power: 2,240 - 2,460kW (3,000 - 3,300hp)
Bogie type: 3 axle, tandem motor
Brake manufacturer: Westinghouse 26L (may vary by locomotive age and version)
Control system: (may vary by locomotive age and version)
Multiple working: Within class (max. 6 in consist) (may vary by locomotive age and version)
Crew amenities: Air conditioning, toilet, water cooler, cab lighting, sunshades (may vary by locomotive age and version)

Builder	Electro Motive Division of General Motors LaGrange, Illinois, U.S.A.
Builder's number and date	October 1967
Restored 2009	RELCO Locomotives Inc., Albia, Iowa, U.S.A.



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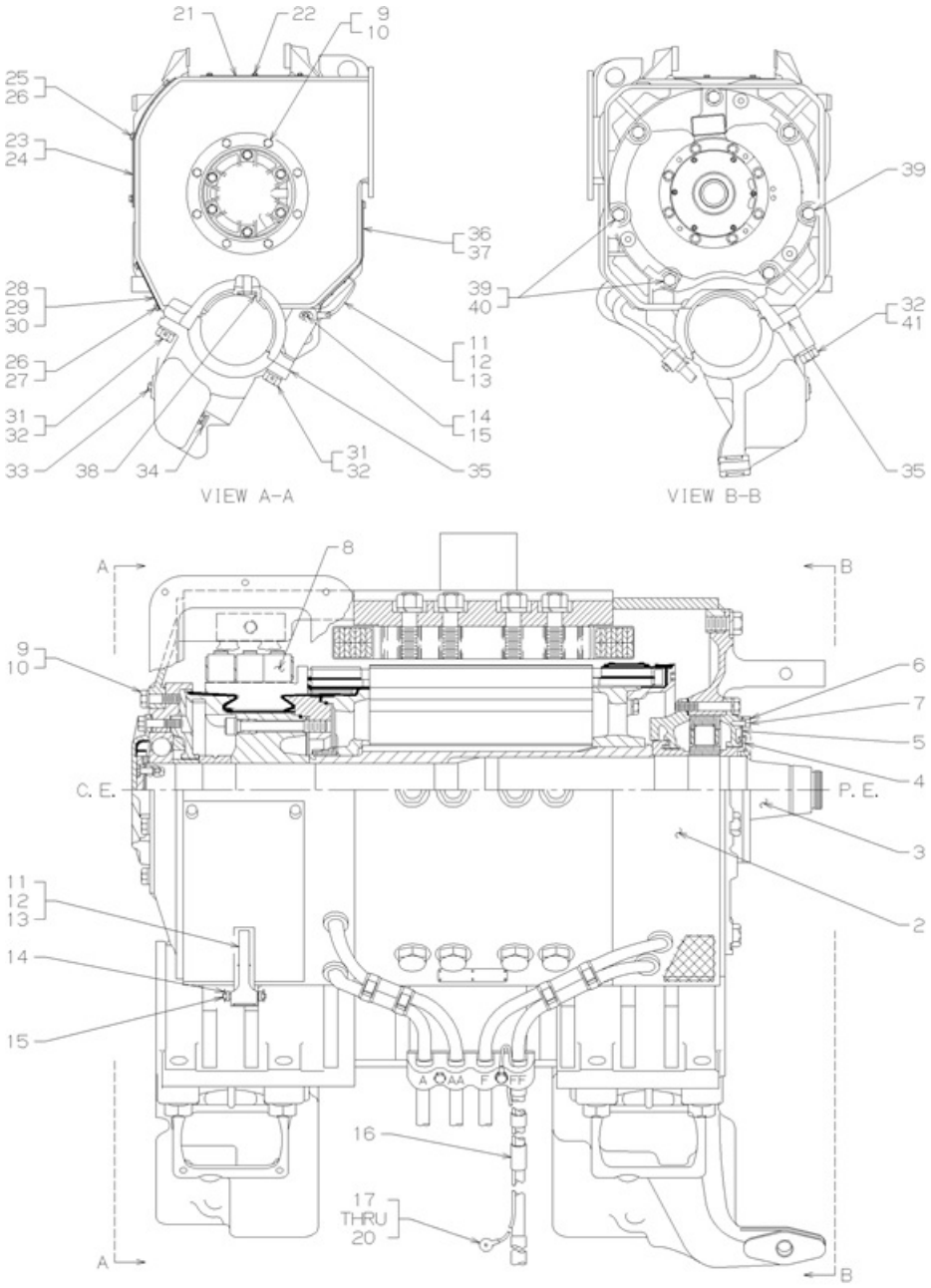
EMD D78-D77 TRACTION MOTOR SPARE PARTS

EMD PART NUMBER 40005625



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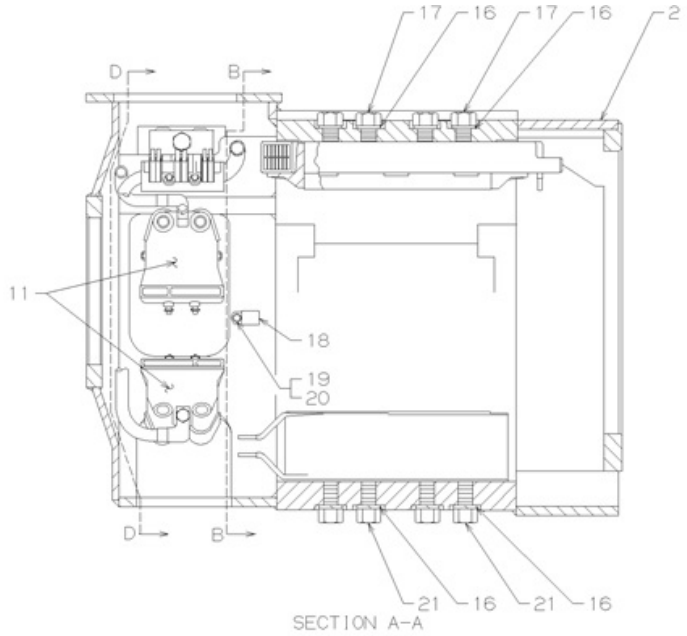
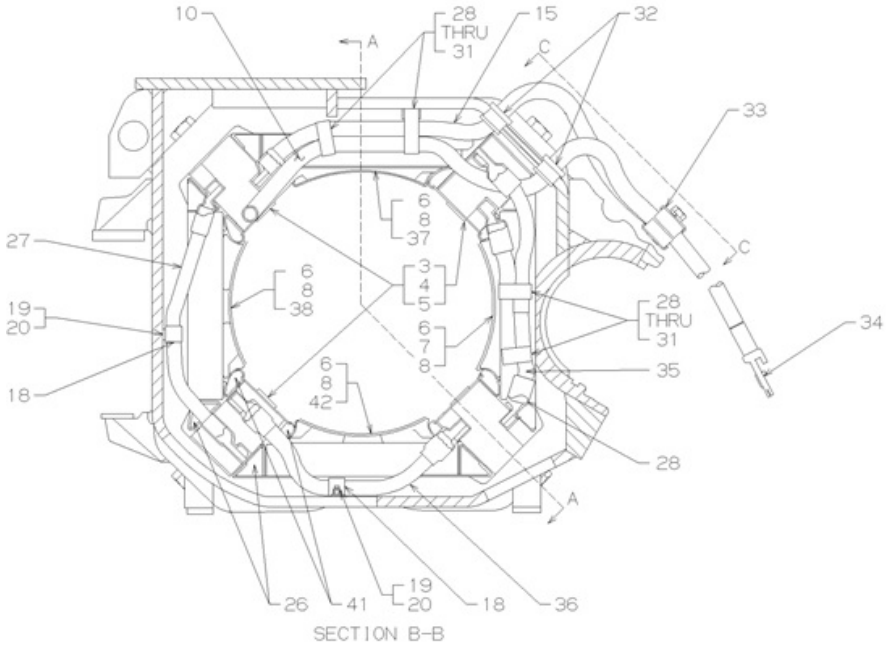
D78 TRACTION MOTOR STATOR



SECTION A-A



SECTION B-B

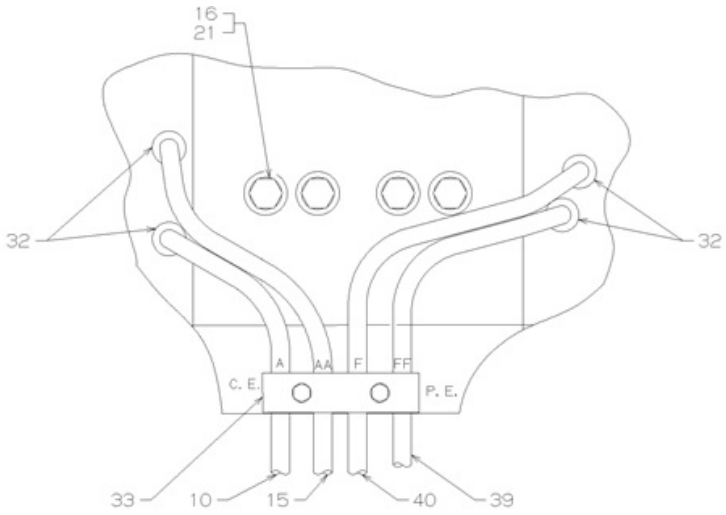
	Part Number	QTY	Description
-1	40005625	1	MOTOR ASSEMBLY .. Traction-D78-Shippingassembly (Pinionnotincluded)
-2	8283810	1	STATOR ASSEMBLY .. Traction motor
-3	9554744	1	ARMATURE AND BEARING ASSEMBLY .. Traction motor
-4	8499804	1	SLINGER .. Grease-Pinionend
-5	8417569	1	PLATE .. Partition-Pinionend
-6	8417565	1	SEAL .. Steel-Outer-Pinionend
-7	8277388	6	SCREW .. Socketcap3/8-16x3/4-Torqueto30-35ft./lbs.
-8	40047197	12	BRUSH .. Carbon - Traction motor
-9	271613	8	BOLT .. Hexhead3/4-10x2-1/2
-10	8133335	8	WASHER .. Lock 3/4
-11	8209519	1	LATCH ASSEMBLY .. Traction motor commutator upper cover
-12	8300016	1	LATCH .. Cover
-13	8300017	2	LINK .. Latchtoframe
-14	108630	2	PIN .. Cotter-1/8
-15	8300057	1	PIN .. Special-3/8 - Link to a frame
-16	8352037	3	TUBING .. Heat shrink - 3-inch length
-17	8351902	1	CABLE ASSEMBLY .. Stator - Traction motor
-18	9326091	AR	CABLE .. AWG8 -IIE - Poly olefin - Gray - 500 feet (Approx 0.58 inches required)
-19	40015621	1	LUG .. Terminal - 5/8
-20	8140346	1	LUG .. Terminal - 1/2
-21	8117405	1	COVER .. Air inlet - Suspension side
-22	8137701	6	BOLT ASSEMBLY .. Hex head 3/8-16x5/8 - Air inlet cover mounting - Includes lock washer
-23	8204665	1	COVER ASSEMBLY .. Commutator - Large lower
-24	8400649	1	GASKET .. Cover - Felt
-25	179881	6	BOLT .. Hexhead 1/2-13x1
-26	103323	10	WASHER .. Lock 1/2
-27	179879	4	BOLT .. Hexhead 1/2-13x3/4

-28	8300013	1	COVER ASSEMBLY .. Commutator - Smalllower
-29	8079571	1	COVER .. Commutator end - Lower
-30	8395503	1	GASKET .. Cover - Felt
-31	8242193	6	BOLT .. Drilled hex-head 1-3/8-6x3
-32	8495681	8	WASHER .. Special - Flat 2.125 O.D. x 1.430 I.D. x 0.354 inches thick
-33	8348620	2	PLUG .. Pipe-Drain - 1/2PT
-34	9333024	2	FILLER ASSEMBLY .. Oil
-35	8478477	4	SHIM .. Axle cap - 0.010
-36	8204661	1	COVER ASSEMBLY .. Traction motor commutator end - Upper
-37	8400561	1	GASKET .. Cover - Felt
-38	9543732	4	PAD .. 1/2x1/2x3/8
-39	8035496	7	BOLT .. Hexhead 1-8x2
-40	8137697	6	WASHER .. Lock 1 inch
-41	9095753	2	BOLT .. Drilled hex-head 1-3/8x6 - Support bearing cap mounting - Pinion end - Lower
-41	9572880	2	BOLT .. Drilled hex-head 1-3/8x7-1/8 - Support bearing cap mounting - Pinion end - Lower (optional for service)
-42	40056595	AR	COMPOUND .. Sealing - 1 carton containing 270 feet

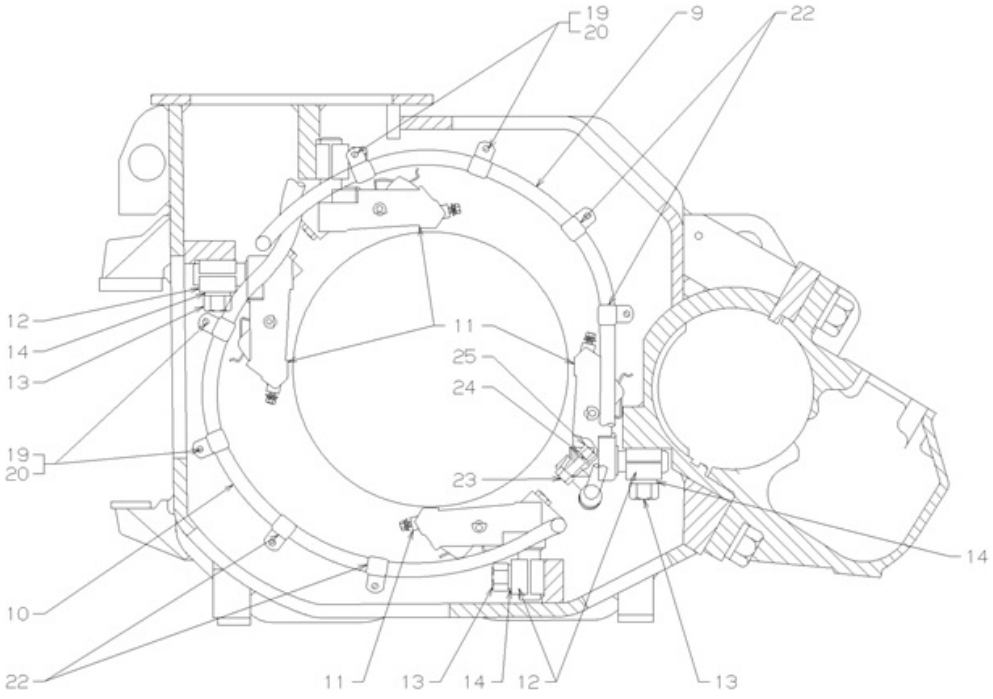
D78 TRACTION MOTOR STATOR

	Part Number	QTY	Description
-1	8283810	1	STATOR ASSEMBLY .. Traction motor - Includes narrow window support bearing caps, axle shield, and commutator covers
-2	8283811	1	FRAME ASSEMBLY .. Traction motor stator - Includes narrow window support bearing caps
-3	8248937	4	COIL ASSEMBLY .. Interpole - Utex No. 8255719

-4	8206527	AR	SHIM .. Interpole coil - 0.029
-5	9563194	8	WASHER .. Insulating
-6	8208116	4	SHIELD .. Mainpole
-7	8248968	1	COIL ASSEMBLY .. Main field - No. 4 - Axle side - Utex No. 8255717
-8	8102831	4	POLEASSEMBLY .. Main - Nos. 1, 2, 3, and 4 coils
-9	8355727	1	CABLE ASSEMBLY .. Brush holder cross-connection - Replaces 9565454
-10	8355728	1	CABLE ASSEMBLY .. “A” and brush holder connector
-11	8417729	4	BRUSH HOLDER ASSEMBLY .. Traction motor
-12	8496443	4	BLOCK .. Brush holder - Traction motor - Outer
-13	271661	4	BOLT .. Hexhead 7/8-9x3-1/4
-14	8137717	4	WASHER ..Lock7/8
-15	8141062	1	CABLE ASSEMBLY .. “AA” - 87 inches long
-16	8160907	28	WASHER .. Lock1 - 1/8
-17	220089	12	NUT .. Hex 1-1/8-7
-18	8355745	2	CLAMP .. Insulated 1-1/16
-19	8035145	10	NUT .. Lock 5/16-18
-20	120393	10	WASHER .. Flat 5/16
-21	272565	16	BOLT .. Hexhead 1-1/8-7x3-3/4 - Interpole coil mounting
-22	9549132	8	CLAMP .. Insulated 7/8
-23	180181	4	BOLT .. Hexhead 1/2-13x2
-24	8137718	4	WASHER .. Lock 1/2
-25	120378	4	NUT .. Hex 1/2-13



VIEW C-C



VIEW D-D

	Part Number	QTY	Description
-26	8276861	8	BAFFLE ASSEMBLY .. Outer - Air - Aluminum
-27	8355704	1	CABLE ASSEMBLY .. Interpole coil - No. 1 to No. 2 - 18 inches
-28	8395904	AR	TAPE .. Adhesive - Glass - 60 yards (Approx 0.77 feet required)
-29	9531800	4	STRAP .. Traction motor lead - Stainless steel
-30	9531799	4	SEAL .. Lead cable strap
-31	8351344	4	INSULATION .. Webbing - Lead strap
-32	8206883	4	GROMMET .. Cable - Cables “A”, “AA”, “F”, and “FF”
-33	40016007	1	KIT .. Cable cleat
-34	8109922	4	CONNECTOR .. Clasp
-35	9565451	1	CABLE ASSEMBLY .. Interpole coil - No. 3 to No. 4 - 17 inches
-36	8351147	1	CABLE ASSEMBLY .. Interpole coil - No. 1 to No.4 - 17 inches
-37	8248967	1	COIL ASSEMBLY .. Main field - No.3 - Top - Utex No. 8255716
-38	8248966	1	COIL ASSEMBLY .. Main field - No.2 - Suspension side - Utex No. 8255715
-39	8141064	1	CABLE ASSEMBLY .. Lead - “FF” - 77 inches long
-40	8141063	1	CABLE ASSEMBLY .. Lead - “F” - 82 inches long
-41	8276860	8	BAFFLE ASSEMBLY .. Inner - Air - Aluminum
-42	8248965	1	COIL ASSEMBLY .. Main field - No. 1- Bottom - Utex No. 8255714
-43	8329770	1	KIT .. Traction motor stator rewind - Includes Ref. Nos. 3, 6, 7, 37, 38, and 42 in quantities indicated (not shown)

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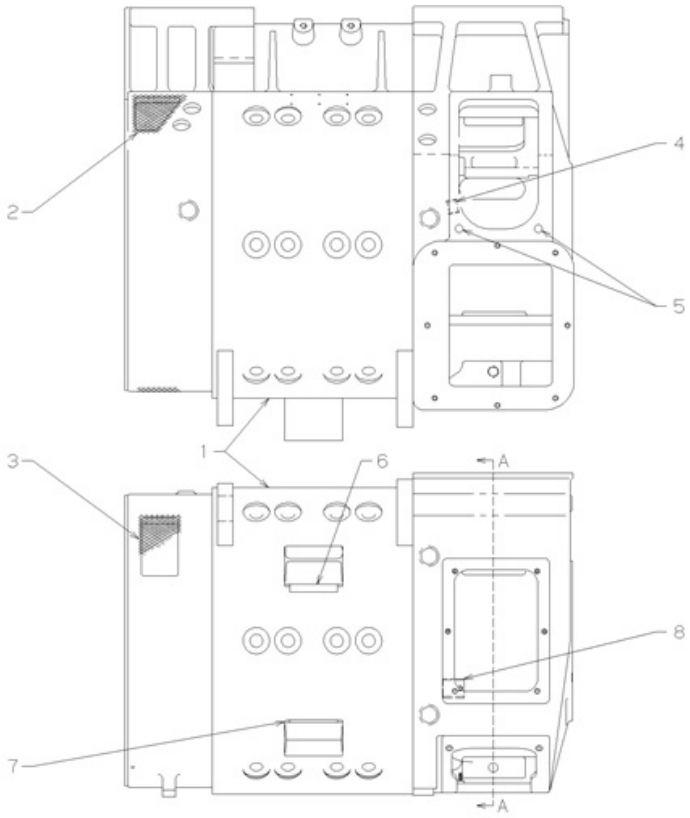
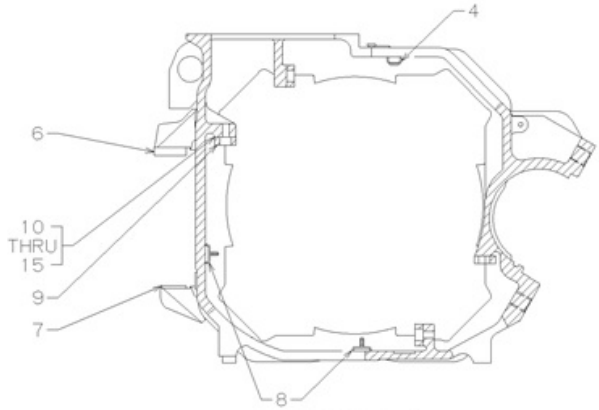
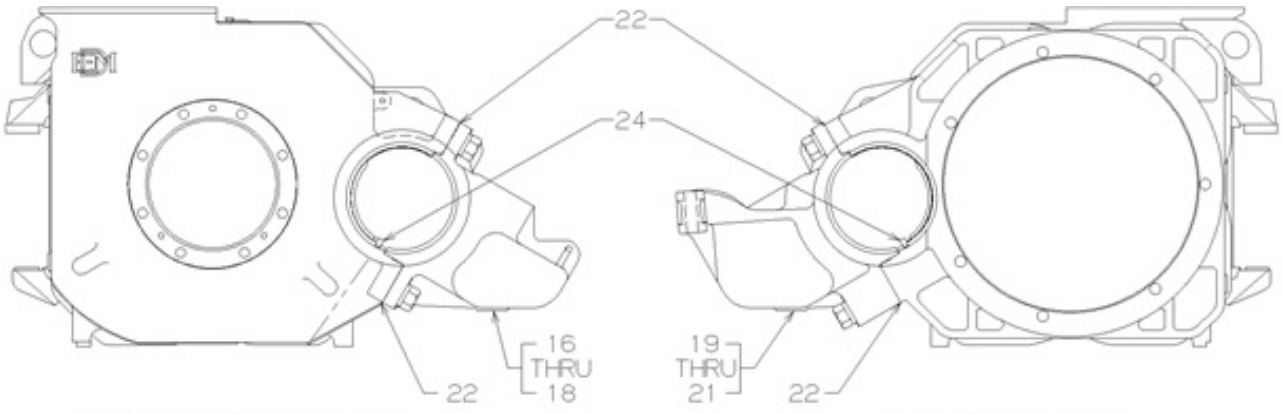
TRACTION MOTOR STATOR - FRAME



SUSPENSION NOSE SIDE VIEW



SECTION A-A



COMMUTATOR END VIEW

PINION END VIEW

	Part Number	QTY	Description
-1	8283811	1	FRAME ASSEMBLY .. Traction motor stator
-2	8212162	1	SCREEN .. Top - Axle side - Pinion end
-3	8212161	1	SCREEN .. Top - Suspension side - Pinion end
-4	8351145	1	SUPPORT .. Cable - Top - Welded
-5	8300003	2	PIN .. Button - 3/8x1-3/8 - Cover retaining
-6	8351502	1	PLATE .. Wear - Traction motor suspension - Upper - Maganese
-7	8436596	1	PLATE .. Wear - Traction motor suspension - Lower - Maganese
-8	9319949	2	PLATE ASSEMBLY .. Stud - Cable clamp - Welded
-9	8300157	4	BLOCK .. Brush holder - Inner
-10	8032452	AR	SHIM .. Brush holder block - 0.015 inch thick
-11	8109178	AR	SHIM .. Brush holder block - 0.032 inch thick
-12	8109179	AR	SHIM .. Brush holder block - 0.058 inch thick
-13	8109180	AR	SHIM .. Brush holder block - 0.003 inch thick
-14	8109181	AR	SHIM .. Brush holder block - 0.007 inch thick
-15	8109182	AR	SHIM .. Brush holder block - 0.010 inch thick
-16	8283987	1	CAP ASSEMBLY .. Axle - Commutator end - Support bearing - Replaces 8276832
-17	9333024	1	FILLER ASSEMBLY .. Oil
-18	8348620	1	PLUG .. Pipe - Drain - 1/2 MPT
-19	9534978	1	CAP ASSEMBLY .. Axle - Pinion end - Support bearing - Replaces 9520927
-20	9333024	1	FILLER ASSEMBLY .. Oil
-21	8348620	1	PLUG .. Pipe-Drain-1/2MPT Support bearing caps are semi-finished. All caps require line boring on application. Pinion caps also require drilling a 1-1/16 inch diameter hole and machining to a 4-inch diameter dimension of the gear case arm.
-22	8478477	4	SHIM .. Axlecap - 0.010
-23	8110556	9	STUD .. 5/16-18x3/4 - Cable clamp - Welded - (not shown)
-24	8166258	2	KEY .. Traction motor support bearing - 1/2x1/2x5-5/16

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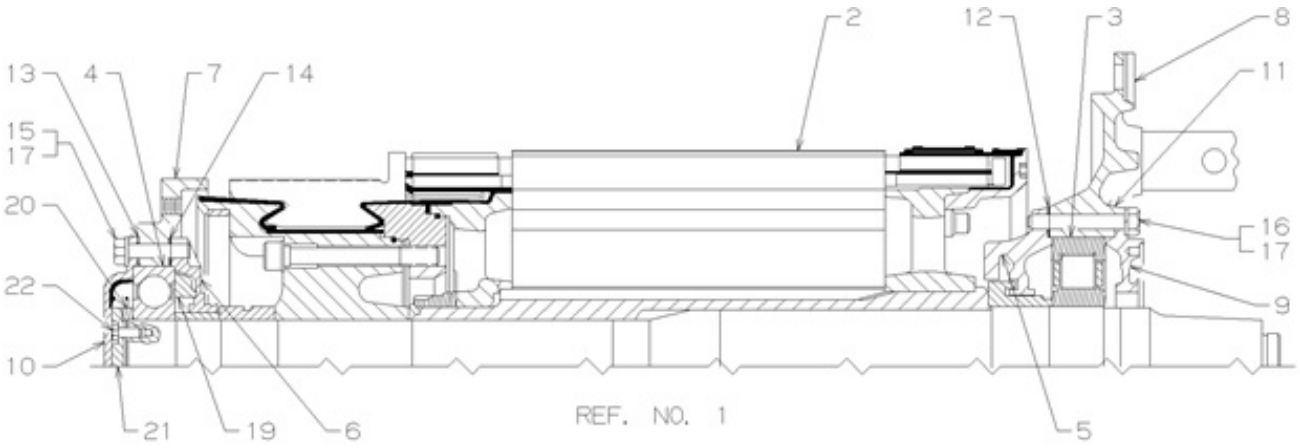
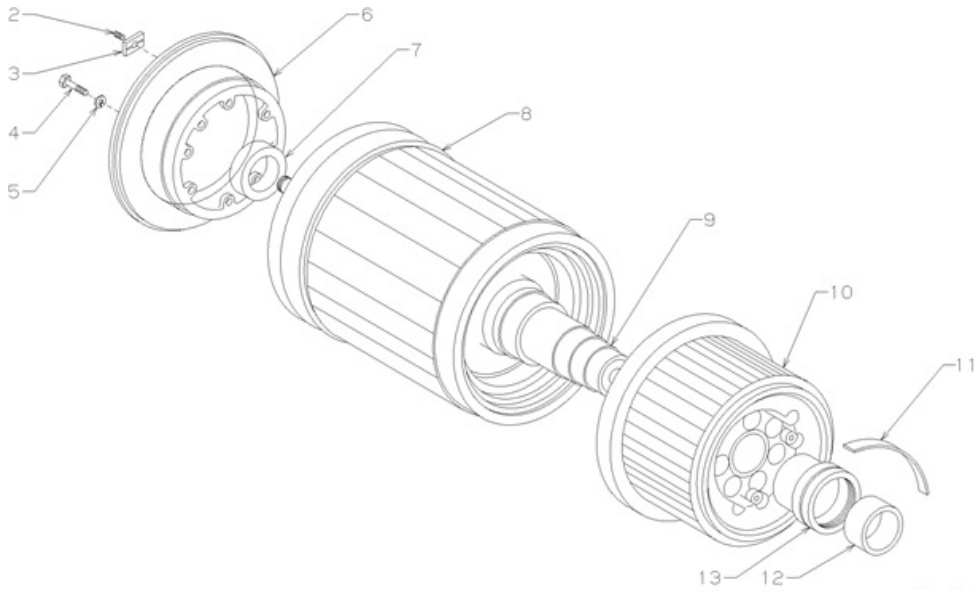
TRACTION MOTOR ARMATURE AND BEARING



	Part Number	QTY	Description
-1	9554744	1	ARMATURE AND BEARING ASSEMBLY .. Traction motor - D78
-2	9554680	1	ARMATURE ASSEMBLY .. Traction motor - D78 - Utex 9550679
-3	40080001	1	BEARING .. Roller - P.E.
-4	40087004	1	BEARING .. Ball - Deep groove - C.E.
-5	9094445	1	CAP .. Bearing cover - Pinion end
-6	9083296	1	CAP .. Bearing cover - Commutator end
-7	8408477	1	HOUSING ASSEMBLY .. Commutator end - Bearing
-8	8300137	1	HOUSING ASSEMBLY .. Pinion end - Bearing
-9	9094444	1	COVER ASSEMBLY .. Bearing - Pinion end
-10	8496324	1	COVER ASSEMBLY .. Bearing - Commutator end
-11	9571085	1	GASKET .. Cover - Pinion end
-12	9571079	1	GASKET .. Cap - Pinion end
-13	9571082	1	GASKET .. Cover - Commutator end
-14	9571083	1	GASKET .. Cap - Commutator end
-15	271566	6	BOLT .. Hexhead 5/8-11x3
-16	271571	8	BOLT .. Hexhead 5/8-11x4-1/4

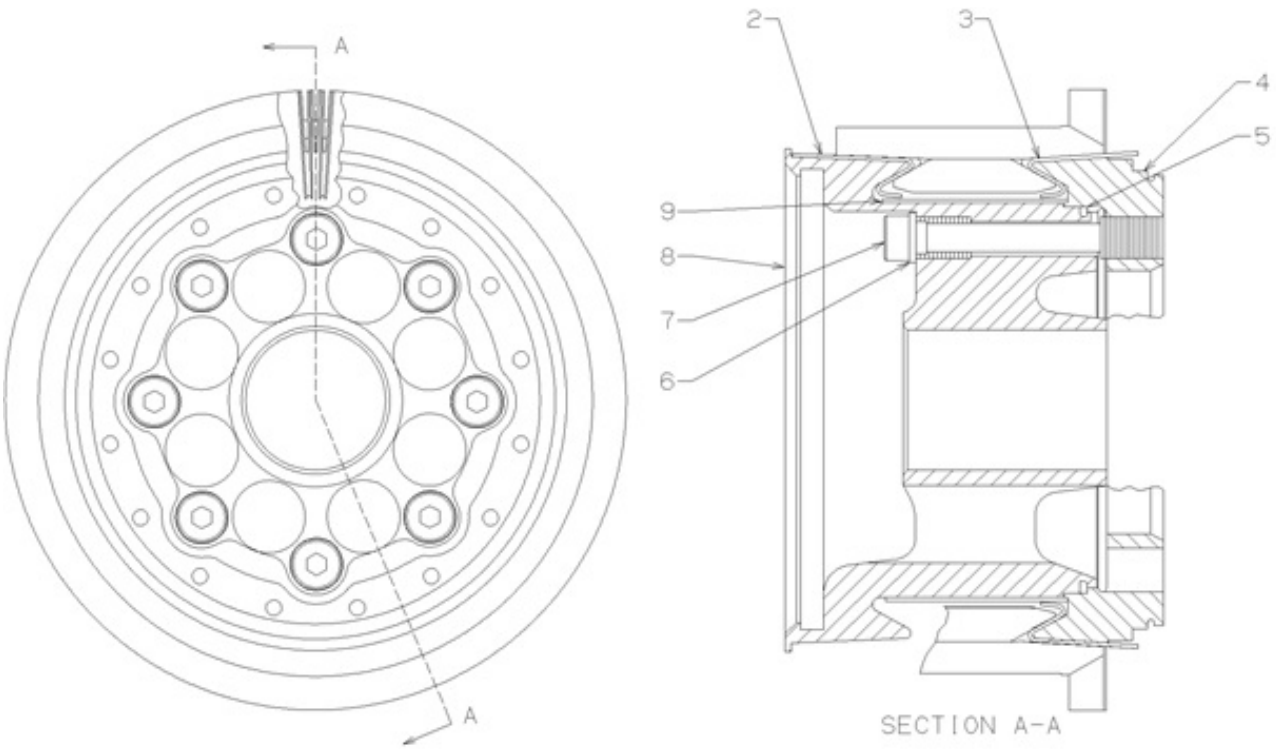
-17	8133334	14	WASHER .. Lock 5/8
-18	8249820	AR	GREASE .. Bearing -114 pound drum (Approx 2 pounds required)
-19	8333591	1	INSERT .. Bearing - Antichurn
-20	40028670	1	SPACER .. Ballbearing
-21	8168504	1	RETAINER .. Bearing - Commutator end
-21A	8479431	1	PLATE .. Retainer (not shown)
-21B	181427	1	BOLT .. Hexhead 1/2-20x1 (not shown)
-22	9420945	6	BOLT .. Lock 7/16-20x1

TRACTION MOTOR ARMATURE



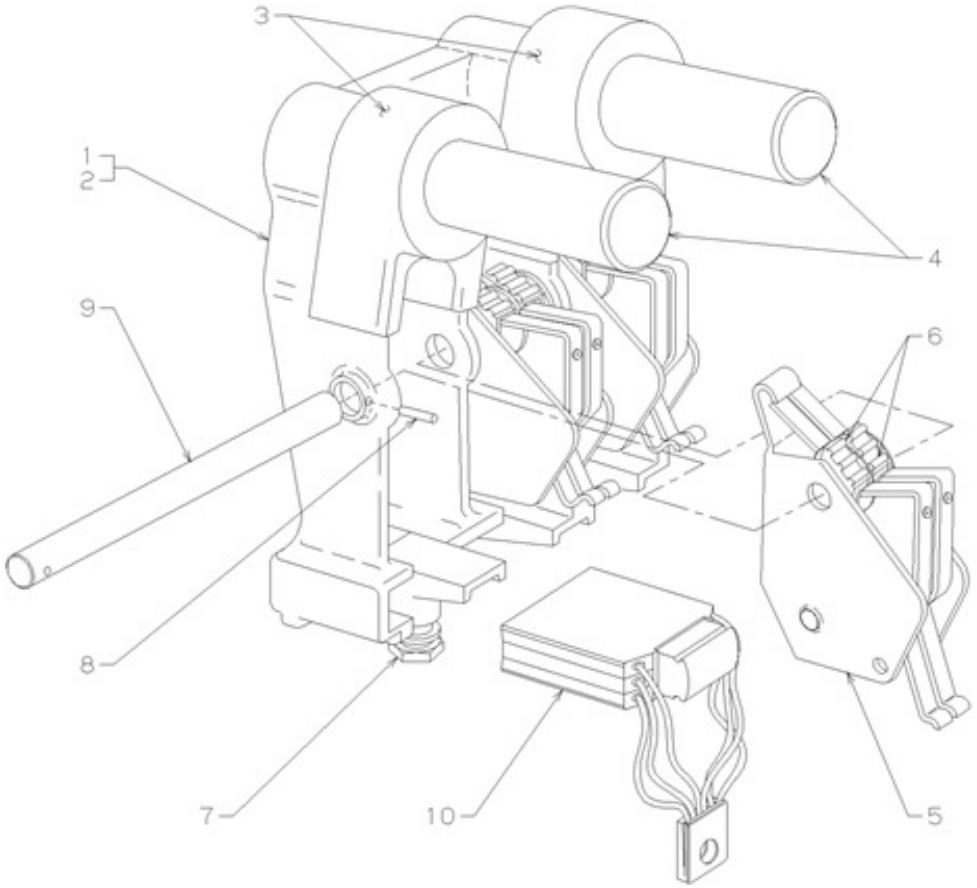
	Part Number	QTY	Description
-1	9554680	1	ARMATURE ASSEMBLY .. Traction motor - D78 - Utex 9550679
-2	115321	AR	SCREW .. Hex socket cup point 5/16-18x5/16 - Weight mounting to bell
-3	8300143	AR	WEIGHT .. Balance - Traction motor armature - Pinion end - Copper
-3	8306706	AR	WEIGHT .. Balance - Pinion end - Aluminum (Optional)
-4	271556	8	BOLT .. Hexhead 5/8-11x1-1/4 - End bell to coil support mounting
-5	8133334	8	WASHER .. Lock 5/8
-6	8300100	1	BELL .. End - Traction motor armature
-7	8499803	1	SEAL .. Inner - Pinion end
-8	8141081	1	CORE ASSEMBLY .. Armature - (For armature coreless the shaft, use 8141251)
-9	8307430	1	SHAFT .. Traction motor armature - Standard
-10	40034413	1	COMMUTATOR ASSEMBLY .. Traction motor armature
-11	9523246	AR	WEIGHT .. Balance - Commutator end
-11	9583247	AR	WEIGHT .. Balance - Commutator end
-11	9523248	AR	WEIGHT .. Balance - Commutator end
-11	9523249	AR	WEIGHT .. Balance - Commutator end
-12	8499802	1	SPACER .. Inner - Commutator end
-13	9083297	1	COLLAR .. Inner - Commutatorend
-14	8356910	1	SEAL .. Extruded - Commutator to armature - Round - 0.335 diameter x42-1/8 inches long (not shown)
-15	9552758	1	SEAL .. Extruded - Commutator to armature - Rectangle - 5/32 diameter x 42-1/2 inches long (not shown)
-16	8351140	1	KIT .. Armature rewind (not shown)

TRACTION MOTOR COMMUTATOR



	Part Number	QTY	Description
-1	40034413	1	COMMUTATOR ASSEMBLY .. Traction motor armature
-2	40032513	1	RINGASSEMBLY .. V-Front
-3	40032514	1	RINGASSEMBLY .. V-Rear
-4	8300061	1	RING .. V-Commutator - Rear
-5	8356910	1	SEAL .. Extruded - Commutator to armature - Rectangle - 5/32 diameter x 42-1/2 inches
-6	8353693	8	WASHER .. Special
-7	8300056	8	BOLT .. Hex socket head 7/8-9x7 - Commutator clamp
-8	8328940	1	SPIDER .. Commutator
-9	9567193	1	STRIP .. Insulation

TRACTION MOTOR BRUSH HOLDER



	Part Number	QTY	Description
-1	8417729	1	BRUSH HOLDER ASSEMBLY .. Traction motor
-2	8417687	1	BRUSH HOLDER .. Traction motor
-3	8417727	2	BOOT .. Rubber stud insulator
-4	8417728	2	STUD ASSEMBLY .. Insulator - Brush holder - Standard
-4	8427800	2	STUD ASSEMBLY .. Insulator - 0.002 oversize (Optional)
-5	8338116	3	CELL ASSEMBLY .. Brush spring
-6	8303075	6	SLIDE .. Finger
-7	8392987	2	BOLT ASSEMBLY .. Hexhead 5/16-18x3/4 - Brush terminal - Includes lock and plain washer
-8	142486	1	PIN .. Groove - 1/8x3/4 - Spindle retaining
-9	8296216	1	SPINDLE .. Rod - Brush holder cell

-10	40047197	3	BRUSH .. Carbon - Traction motor It is not recommended to mix brands (manufacturers) of carbon brushes with in an assembly.
-11	REF	AR	COMPOUND .. Insulator boot - 6 ounce tube (8345495 not available from EMD - not shown)

THERE ARE A TOTAL OF 4 BRUSH HOLDER ASSEMBLIES PER STATOR ASSEMBLY.