COOPER Tools

Operation & Service Manual
5/01

Cleco®

5 SAD Series Nutrunners

NORTH AMERICA

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OPERATION - CLECOMATIC Models
No. 5 Series CLECOMATIC CCW screwdrivers are designed for the clutch to shut-off in reverse. Accurate torque is achieved by setting the CLECOMATIC clutch to the desired torque. The tool will automatically shut off at this preset torque. The RSATP model is designed to start when the trigger is pulled and stops when the clutch reaches the set torque or the trigger is released. Releasing the trigger will reset the tool for the next cycle.

CLUTCH ADJUSTMENT
Clutches are adjusted through the slot provided in the clutch housing. The slot cover must be rotated to expose the adjustment slot. Rotate the clutch housing until the hole in the adjustment lock plate is visible. Insert a No. 1 Phillips screwdriver and rotate in a clockwise direction to increase the torque setting or a counterclockwise direction to decrease the setting. After each adjustment, the slot cover should be rotated back to its locked position.

⚠ CAUTION If the clutch is adjusted over the maximum power output of the tool, the clutch will not function and the tool will operate like a stall-type tool. Also, if the tool is being operated at its upper torque limits, a drop in air pressure could cause the clutch not to function due to a loss of motor power and the tool will function like a stall-type tool. If tool stalls operator must resist stall torque until he releases throttle.

Operational check: Grip tool securely and be prepared to counteract stall torque in case clutch is improperly adjusted.

AIR SUPPLY
The tool is designed to operate at 90 psig (6.2 bar) air pressure. The air pressure should be checked at the tool's air inlet while the tool is running. The use of an automatic in-line filter-regulator-lubricator is highly recommended. This will supply the tool with clean, lubricated air, keep it in sustained operation, and increase tool life. For maximum performance, use a 1/4" (6.5mm) I.D. air hose up to 8 feet in length. If additional length is required, a 3/8" (9.5mm) I.D. or larger hose should be connected to the 1/4" (6.5mm) I.D. hose. The air hose should be cleared of accumulated dirt and moisture, then one-quarter (1/4) (6.5cc) teaspoon of 10W machine oil should be poured into the tool's air inlet before connecting the hose to the tool.

LUBRICATION
The in-line lubricator should be checked regularly and filled with a good grade of 10W machine oil. In the event a line lubricator is not used, tools should be disconnected from the air supply several times daily and several drops of oil poured into the tool's inlet bushing. Application of the tool should govern how frequently it is greased. It is recommended that the idler gears receive a generous amount of NLGI 2-EP grease after every 40 hours of operation. The clutch housing (left hand threads) and clutch must be removed and the grease applied through the hex in the spider.

DISASSEMBLY - GENERAL (All Models)
Clamp the air inlet bushing in a soft-jawed vise and unscrew (left hand threads) the clutch housing and remove the clutch assembly. Use strap wrenches to remove the gear case from the backhead. The throttle valve rod and motor unit may now be removed from the front of the backhead. See the following paragraphs for complete disassembly instructions on the various subassemblies.

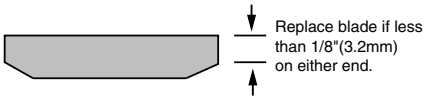
CLUTCH DISASSEMBLY - CLECOMATIC Clutch
Unscrew (left hand threads) the adjustment nut 869123, and remove the adjustment lock ring 869140. The torque spring, spring sleeve, bearing races 863455, thrust bearing 847104, ball retainer, 203573, and four (4) steel balls 842161, may now be removed from the clutch spindle. Washing the remaining spindle assembly in a solvent at this time will aid in disassembly. Remove the ball retainer ring 203574, and ball retainer plug 869149, from the clutch cam 204597. Rotate the clutch spindle to allow the thirteen (13) steel balls 842980 to drop out of the ball loading hole located in the clutch cam. Separate the clutch spindle and clutch cam, being careful not to lose the reset pin 869112, reset spring 203585, reset pin stop 869424, trip slide 203612, trip slide reset spring 203613, and dowel pin 617226.

GEAR TRAIN DISASSEMBLY — -174 Gear Train
When pressing the spider assembly out of the rear of the gear case 869162, be sure the idler gears 869163, are in line with the pockets machined in the gear case. Press the idler gear pins 833862 out the rear of the spider 869155 for inspection of the idler gear pins and idler gears 869163. Remove the bearing retainer ring 619017 and press the front spider bearing 847595 out the front of the gear case.

MOTOR DISASSEMBLY
Slip the front bearing 842768 and front bearing plate 203641, off the front of the rotor and remove the cylinder 203504, and four (4) rotor blades 203615. Set the rear bearing plate on the vise jaws with the rotor hanging down. Use a 3/16" (4.8mm) punch to drive the rotor out of the rear rotor bearing 842768.

BACKHEAD DISASSEMBLY
For inspection or replacement of the throttle valve or related parts, roll down grip sleeve and drive throttle valve bushing retainer pin out and remove bushing. Remove the valve cap 203559 and remove the shut-off valve and seal for inspection. The reversing valve may be removed by first unscrewing the reversing valve screw out of the reversing valve knob. Then reversing valve may be removed from the front of the handle. On reassembly make sure the reversing valve screw aligns with the threaded hole in reversing valve.

REASSEMBLY — GENERAL
All parts should be washed in a solvent and inspected for damage or wear. Particular attention should be given to all bearings, gears, gear pins, and rotor blades as failure of these parts could cause damage to more expensive parts. Rotor blades should be replaced if they measure less than 1/8" (3.2mm) on either end.



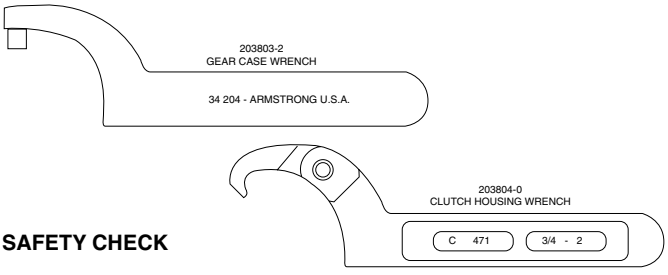
Inspect and replace any "O"-rings or seals that show signs of wear of deterioration. All gears, gear pins, and open bearings should receive a generous amount of NLGI 2-EP grease during reassembly. Reassembly of all of the various subassemblies is in reverse order of disassembly: however, the following paragraphs list some of the more important reassembly procedures.

CLUTCH REASSEMBLY — Clecomatic Clutch
During reassembly of the clutch, all parts should receive a thin coating of 10W machine oil. In addition, the ball retainer 203573, should receive a generous amount of NLGI 2-EP grease. When installing the dowel pin 617226, the tapered end goes into the clutch cam first. The trip slide 203612, goes into the clutch cam cupped-end first. All parts installed into the clutch spindle 203625, and clutch cam 204597, should be checked for smooth operation before complete assembly of the clutch.

MOTOR REASSEMBLY
Install the rear rotor bearing into the rear bearing plate 203506. Press the bearing plate assembly (press on the bearing's inner race) onto the rear rotor shaft until there is approximately .0015" (.038mm) clearance between the rear bearing plate and motor.

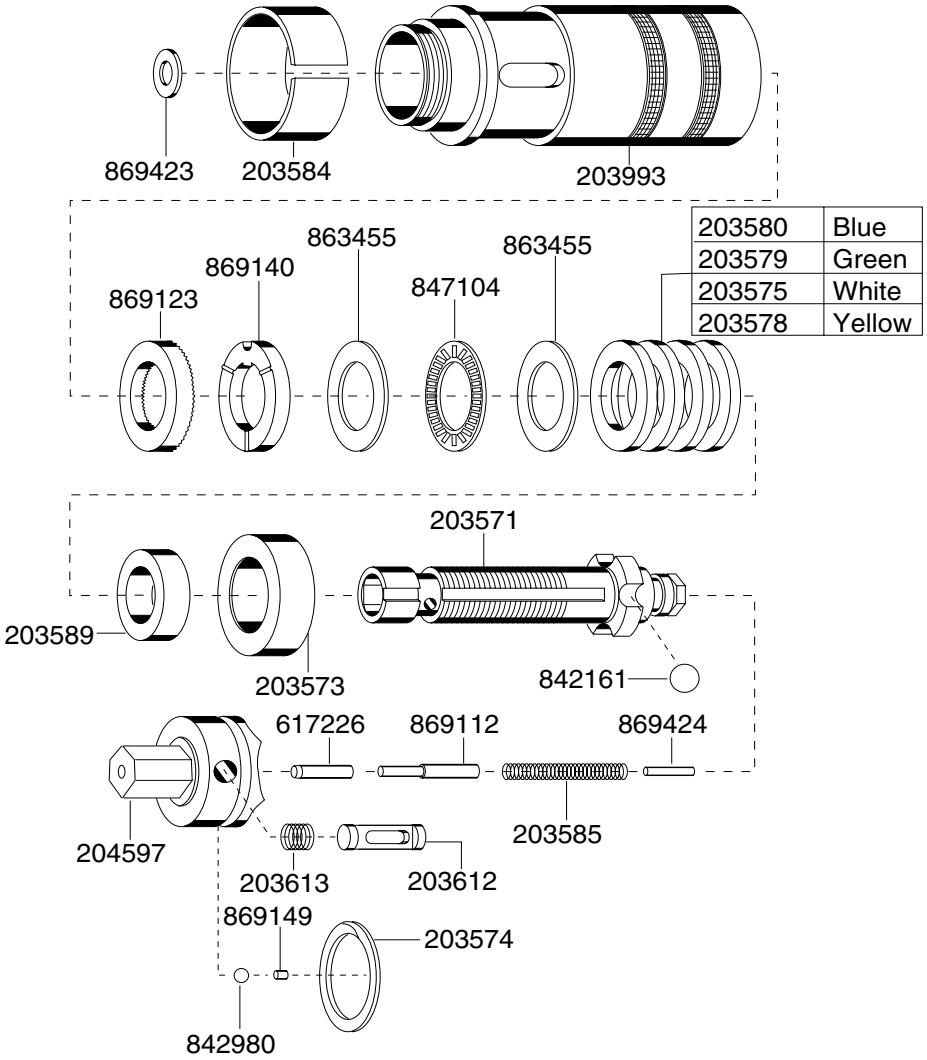
TRIP ROD SIZING
The trip rod No. 203586, should be sized to allow approximately 1/8" (3.2mm) throttle valve opening.

IMPORTANT: During reassembly of the complete tool, the gear case should be tightened to handle to 20 ft. lbs. (27Nm). Wrenches shown below can be ordered to tighten the gear case and clutch housing.



SAFETY CHECK
After repair or replacement of parts, tools should be tested to verify that they are functioning properly.

5 CLECOMATIC CLUTCH



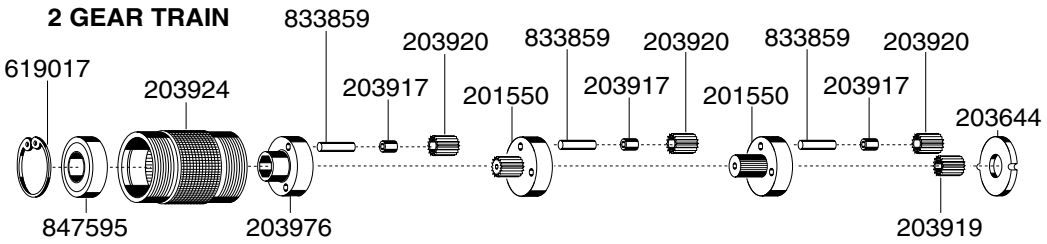
PARTS LIST — 5 CLECOMATIC CLUTCH

Part No.	Name of Part	Qty.	Part No.	Name of Part	Qty.
203571	Clutch Spindle	1	617226	Dowel Pin	1
203573	Ball Retainer	1	842161	Ball (3/16" /4.76250mm)	4
203574	Retainer Ring	1	842980	Ball (3/32" /2.38125mm)	13
203575	Torque Spring - White	1	847104	Needle Bearing	1
203578	Torque Spring - Yellow	1	863455	Thrust Race	2
203579	Torque Spring - Green	1	869112	Reset Pin	1
203580	Torque Spring - Blue	1	869123	Adjustment Nut	1
203584*	Adj. Cover (incl. in 203581)	1	869140	Adjustment Lock Ring	1
203585	Clutch Reset Spring	1	869149	Ball Retainer Plug	1
203589	Spring Spacer	1	869423*	Clutch Spacer	1
203612	Trip Slide	1	869424	Reset Pin Stop	1
203613	Slide Reset Spring	1			
203993	Clutch Housing	1			
204597	Clutch Cam	1			

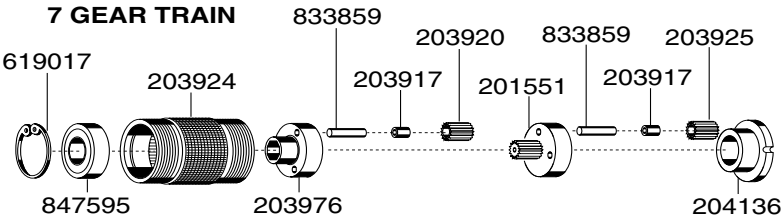
The complete clutch can be purchased using these part numbers: 17, 25 - 201807
10 - 201484

2, 7 & 10, GEAR TRAINS & 104 1ST REDUCTION GEAR TRAIN

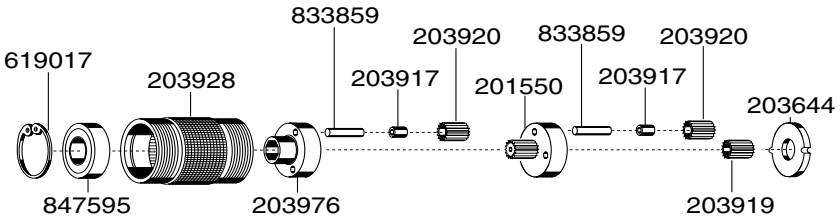
2 GEAR TRAIN



7 GEAR TRAIN



10 GEAR TRAIN & 104 2ND REDUCTION GEAR TRAIN



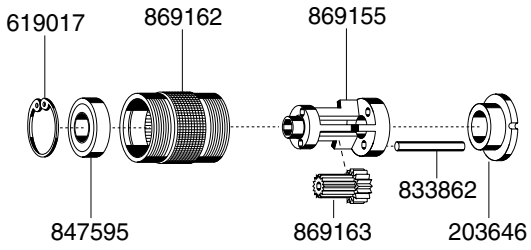
PART LIST — 2, 7 & 10 GEAR TRAINS & 104 1ST REDUCTION GEAR TRAIN

PART NO.	NAME OF PART	QTY.
201550	2, 10 & 104 Reduction Spider— (2 req. 2) (incls. 869132, 203916)	1
201551	7 1st Reduction Spider (incls. 869132, 203916)	1
203644	2, 10 & 104 Motor Spacer	1
203917	2, 7, 10 & 104 Idler Gear Bushing (2 req. 9)	6
203919	Rotor Pinion (13T)	1
203920	2, 7, 10 & 104 Idler Gear (14T) (2 req. 9, 7 req. 3)	6
203924	& Gear Case (41T)	1
203925	7 1st Red. Idler Gear (16T)	3
203928	10 & 104 Gear Case (41T)	1
203976	7, 10 & 104 2nd & 2 3rd. Red. Spider (incls. 203916)	1
204136	7 Motor Spacer	1
619017	Bearing Retainer Ring	1
833859	2, 7, 10 & 104 Idler Gear Pin (2 req. 9)	6
847595	Spider Bearing	1
869132	2, 7, 10 & 104 Spider Pinion (13T) (2 req. 2)	1

The complete gear train can be purchased as a subassembly using the following part numbers: 2 — 201589, 7 — 201586, 10 & 104 — 201587

17 & 25 GEAR TRAINS & 174, 254 1ST REDUCTION GEAR TRAINS

17 GEAR TRAIN & 174 1ST REDUCTION GEAR TRAIN

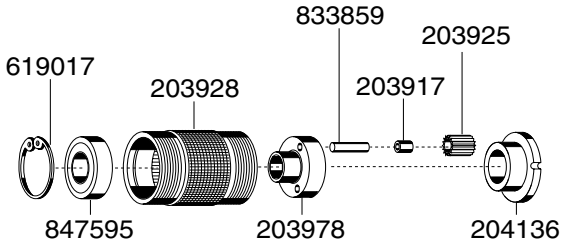


PARTS LIST — 7, 174 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
203646	Motor Spacer	1
619017	Bearing Retainer Ring	1
833862	Idler Gear Pin	3
847595	Front Spider Bearing	1
869155	Spider	1
869162	Gear Case (27T)	1
869163	Stepped Idler Gear (9T & 18T)	3

The complete gear train can be purchased as a subassernbly using part number: 201474.

25 GEAR TRAIN & 254 1ST REDUCTION GEAR TRAIN

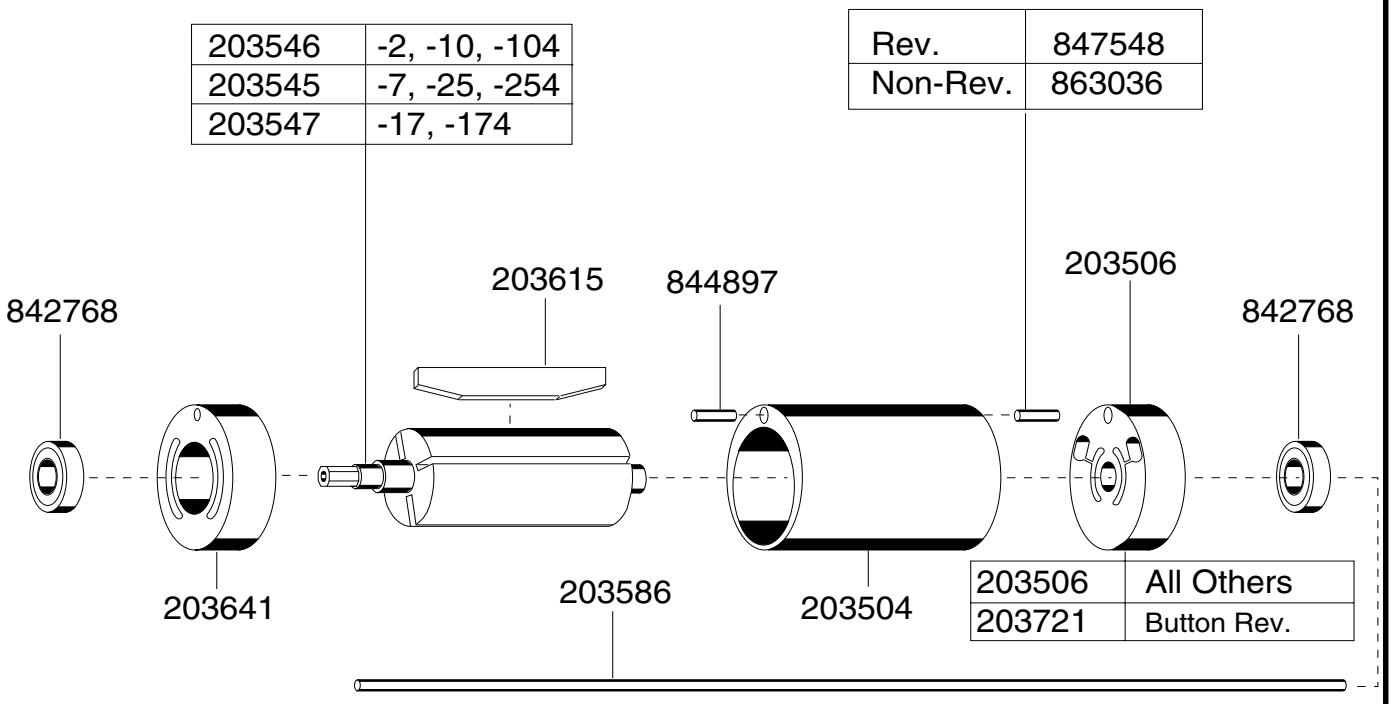


PARTS LIST — 5, 254 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
203917	Idler Gear Bushing	3
203925	Idler Gear (16T) (incls. 203917)	3
203928	Gear Case (41T)	1
203978	Spider (incls. 203916)	1
204136	Motor Spacer	1
619017	Bearing Retainer Ring	1
203916	Idler Gear Pin	3
847595	Spider Bearing	1

The complete gear train can be purchased as a subassembly using part no. 201588.

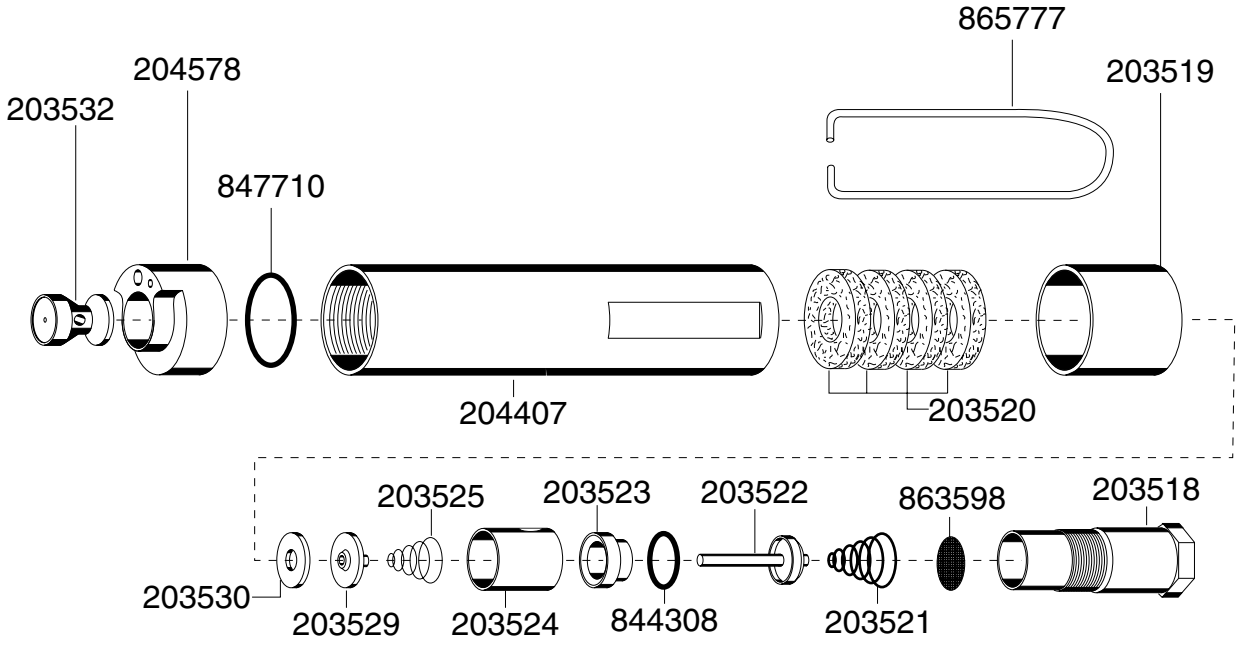
5 MOTORS



PARTS LIST — 5 MOTORS

Part No.	Name of Part	Qty.
203504	Cylinder	1
203506	Rear Bearing Plate (All Others)	1
203545	Rotor 7, 25, 254 (7T)	1
203546	Rotor 2, 10, 104 (Hex)	1
203547	Rotor 17, 174 (6T)	1
203586	Trip Rod (Clecomatic)	1
203615	Rotor Blade	4
203641	Front Bearing Plate	1
203721	Rear Bearing Plate (Button Rev.)	1
842768	Bearing	2
844897	Front Cylinder Pin	1
847548	Reversible Rear Cylinder Pin	1
863036	Non-Reversible Rear Cylinder Pin	1

5 CLECOMATIC HANDLE



PARTS LIST — 5 CLECOMATIC HANDLE

Part No.	Name of Part	Qty.	Part No.	Name of Part	Qty.
203518	Inlet Bushing (incl. 863598)	1	203532	Motor Spacer	1
203519	Exhaust Deflector	1	204407	Motor Housing	1
203520	Muffler	4	204578	Reversing Valve	1
203521	Throttle Valve Spring	1	844308	"O"-ring (9/16" x 23/64")	1
203522	Throttle Valve	1	847710	"O"-ring (5/8" x 31/64")	1
203523	Throttle Valve Seat	1	863598	Inlet Screen	1
203524	Throttle Valve Bushing	1	865777*	Bail (Optional)	1
203525	Shut-off Valve Spring	1	869786	ThrottleValve Pin	1
203529	Shut-off Valve	1			
203530	Throttle Valve Seal	1			

The complete handle can be purchased as a subassembly using part number: 201768
*Not included in subassembly.

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