1830 UNI-LOADER

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CASE CORPORATION

C E Div. 9-73487
1830 Uni-Loader
Rev. July 1976

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Section 1050

MAINTENANCE AND LUBRICATION

CASE CORPORATION

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MAINTENANCE CHART

INTERVAL	SERVICE	INSTRUCTIONS
Run-In Period After First 2 Hours	Check fan belt tension. Torque wheel nuts to 80-90 foot-pounds every 2 hours until stable.	Section 8016.
Every 10 Hours or Daily, Whichever Occurs First	Check engine oil level. Check radiator coolant level and check radiator for obstructions. Grease loader pivot points. Grease attachment pivot points. Clean air cleaner dust cup and precleaner. Fill fuel tank. Visually check machine for broken, missing or loose parts. Check for leaks under machine.	Section 2051.
Every 50 Hours or Weekly, Whichever Occurs First	Check fan belt tension. Check battery fluid level. Check tire pressure. Check hydraulic oil level. Oil MUST be cold. Grease control lever cross shaft. Change engine oil.	Section 8016. Section 8014. Section 6024. Section 4011.
Every 100 Hours	Change engine oil filter. Check engine speeds. Clean out spark arresting muffler (if so equipped).	Section 2052.
Every 200 Hours	Check drive chain tension.	Section 6023.
Every 250 Hours	Clean exterior of engine. Replace the points and spark plugs. Replace in-line fuel filter. Inspect ignition wires and connections.	Section 8013. Section 3052.

INTERVAL	SERVICE	INSTRUCTIONS
Every 250 Hours Cont'd	Adjust engine valve tappets.	Section 2052
Every 500 Hours of Operation	Clean radiator fins and check for leaks. Clean and repack grease on chain coupler.	 Section 2052
Every 1000 Hours of Operation or Yearly	Change hydraulic oil and oil filter. Clean hydraulic reservoir breather.	Section 4011.
Every 2000 Hours of Operation or Yearly	Drain, flush and refill chain compartment oil (each side). Drain, flush and refill cooling system. Drain sediment and water from fuel tank.	Section 6023
As Required	Clean or replace air cleaner element when red band on restriction indicator remains in view. Replace hydraulic oil filter. Torque wheel nuts to 80-90 foot-pounds every two hours until stable after reinstalling wheels. Check operation of steering controls, adjust as required. Drain sediment and water from fuel tank and change in-line fuel filter.	Section 2051. Section 4011.

FLUIDS AND LUBRICANTS

COMPONENT	CAPACITY U.S.	CAPACITY Metric	SPECIFICATIONS
Fuel tank	14.5 gallons	55 liters	Use leaded type regular gasoline.
Engine crankcase oil With filter change	3 quarts	2.8 liters	Use Case HDM Oil - API classification SC and SD.
Without filter change	2.75 quarts	2.6 liters	Above 32° F (0° C) ----SAE 30 10° to 50° F (-12° to 10° C) ----SAE 20W20 Below 32° F (0° C) ---- SAE 10W Alternate oil: Case 10W40
Equipment/transmission hydraulic system Total system Reservoir refill	 8 gallons 6 gallons	 30 liters 22.7 liters	Use Case TCH Fluid Alternate oil: Type C-2 transmission and hydraulic fluid such as Tenneco Hytrans Fluid.
Battery	As required		Add colorless, odorless drinking water.
Grease fittings	As required		Above 32° F (0° C) Multipurpose or No. 2 lithium-soap base grease. Below 32° F (0° C) Multipurpose or No. 1 lithium-soap base grease.
Chain drive coupling	As required		Molykote, type G grease.
Cooling system	8 quarts	7.6 liters	Ethylene glycol and water should be mixed for prevailing temperatures. Follow the manufacturer's specifications.
Chain compartments each side	4 quarts	3.8 liters	Use engine oil with API classification SD (MS) SAE 30.

Section 1051

TORQUE CHART

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U.S. AND METRIC TORQUE SPECIFICATIONS

Grade 5 Bolts, Nuts and Studs (Dry Threads)

Thread size	Ft-lbs	N m	Thread size	Ft-lbs	N m
1/4"-20 NC	5-10	7-13	3/4"-10 NC	235-285	319-386
1/4"-28 NF	10-15	13-20	3/4"-16 NF	270-330	366-447
5/16"-18 NC	15-20	20-27	7/8"-9 NC	360-440	488-597
5/16"-24 NF	15-20	20-27	7/8"-14 NF	395-490	536-664
3/8"-16 NC	25-35	34-47	1"-8 NC	520-640	705-867
3/8"-24 NF	30-40	41-54	1"-12 NF	575-705	780-955
7/16"-14 NC	45-55	61-74	1-1/8"-7 NC	720-820	976-1111
7/16"-20 NF	50-60	68-81	1-1/8"-12 NF	790-970	1071-1315
1/2"-13 NC	65-85	88-115	1-1/4"-7 NC	1010-1240	1370-1681
1/2"-20 NF	80-100	109-135	1-1/4"-12 NF	1115-1365	1512-1850
9/16"-12 NC	100-120	135-163	1-3/8"-6 NC	1315-1610	1783-2182
9/16"-18 NF	110-130	149-176	1-3/8"-12 NF	1510-1850	2047-2508
5/8"-11 NC	135-165	183-223	1-1/2"-6 NC	1745-2135	2366-2894
5/8"-18 NF	160-200	216-271	1-1/2"-12 NF	1880-2420	2549-3281

Grade 8 Bolts, Nuts and Studs (Dry Threads)

Thread size	Ft-lbs	N m	Thread size	Ft-lbs	N m
1/4"-20 NC	10-15	13-20	3/4"-10 NC	340-420	461-569
1/4"-28 NF	15-20	20-27	3/4"-16 NF	380-460	515-623
5/16"-18 NC	20-30	27-40	7/8"-9 NC	540-660	732-894
5/16"-24 NF	25-30	34-40	7/8"-14 NF	595-725	807-982
3/8"-16 NC	40-50	54-67	1"-8 NC	810-990	1098-1342
3/8"-24 NF	45-55	61-74	1"-12" NF	900-1100	1220-1491
7/16"-14 NC	60-80	82-102	1-1/8"-7 NC	1150-1400	1559-1898
7/16"-20 NF	70-90	95-122	1-1/8"-12 NF	1295-1585	1756-2148
1/2"-13 NC	100-120	136-162	1-1/4"-7 NC	1640-2000	2224-2711
1/2"-20 NF	110-130	149-176	1-1/4"-12 NF	1800-2200	2440-2982
9/16"-12 NC	135-165	183-223	1-3/8"-6 NC	2140-2620	2901-3552
9/16"-18 NF	155-190	210-257	1-3/8"-12 NF	2450-3000	3322-4067
5/8"-11 NC	200-240	271-325	1-1/2"-6 NC	2845-3475	3857-4711
5/8"-18 NF	215-265	292-359	1-1/2"-12 NF	3200-3900	4339-4880

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U.S. AND METRIC TORQUE SPECIFICATIONS

Hydraulic Fittings (Steel)

Dash Size	Tube O.D. Hose I.D.	Thread Size	37° Flare Torque		Straight Thread O-ring Torque	
			Ft-lbs	N m	Ft-lbs	N m
4	1/4"	7/16"-20	6-12	8-16	12-19	16-25
5	5/16"	1/2"-20	8-16	11-21	16-25	22-33
6	3/8"	9/16"-18	10-25	14-33	25-40	34-54
8	1/2"	3/4"-16	15-42	20-56	42-67	57-90
10	5/8"	7/8"-14	25-58	34-78	58-92	79-124
12	3/4"	1-1/16"-12	40-80	54-108	80-128	108-174
14	7/8"	1-3/16"-12	60-100	81-135	100-160	136-216
16	1"	1-5/16"-12	75-117	102-158	117-187	159-253
20	1-1/4"	1-5/8"-12	125-165	169-223	165-264	224-357
24	1-1/2"	1-7/8"-12	210-250	258-338	250-400	339-542

Split Flange Mounting Bolts (Grade 5, Dry Threads)

Flange Size	Thread Size	Torque	
		Ft-lbs	N m
1/2"	5/16"-18 NC	15-20	20-25
3/4"	3/8"-16 NC	20-25	26-33
1"	3/8"-16 NC	20-25	26-33
1-1/4"	7/16"-14 NC	35-45	47-61
1-1/2"	1/2"-13 NC	45-55	61-74
2"	1/2"-13 NC	55-65	74-88
2-1/2"	1/2"-13 NC	80-90	104-122
3"	5/8"-11 NC	140-150	190-203

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Section 2051

AIR CLEANER

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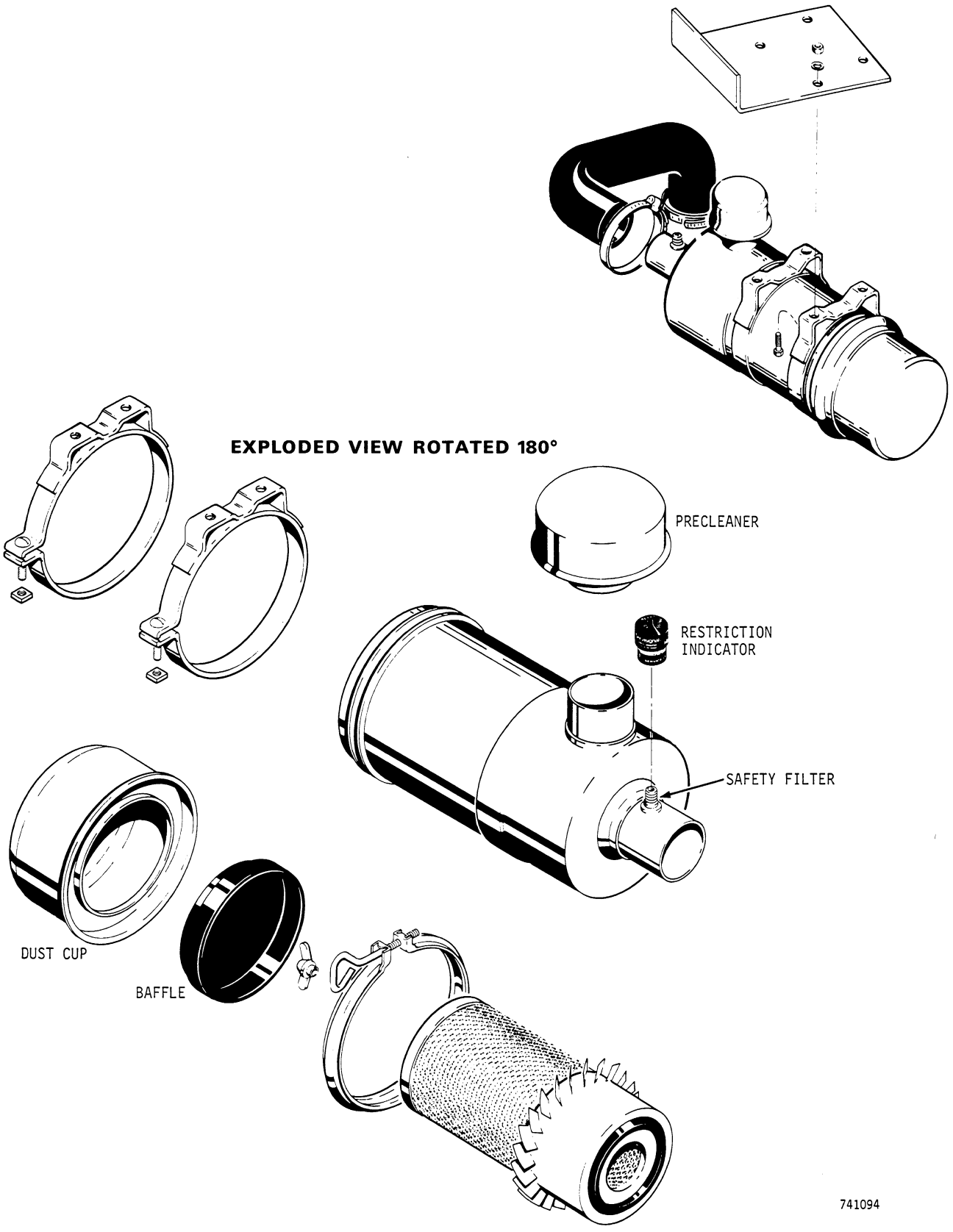

Figure 1 - Air Cleaner Installation

AIR CLEANER SERVICE

Service Interval

The air cleaner filter element must be serviced when the red band on the air cleaner restriction indicator remains in full view. In addition to filter service the dust cup should be cleaned daily or more often as conditions warrant.

Filter Element Service

Washing is the preferred method of cleaning the element as it removes more dust and soot, thus restoring the element to an almost new condition.

Wash the filter in Case Filter Element Cleaner, Part No. A40910. Mix according to instructions on container. Do not use water pressure over 40 psi at the nozzle. Let the element dry completely before installing. Do not use compressed air to dry the element.

Use of compressed air to clean the element is permissible but not recommended as it does not remove carbon and soot. When using compressed air, use no more than 30 psi at the nozzle and keep the nozzle a reasonable distance (no closer than 1") away from the filter. Move the nozzle up and down each pleat, blowing from the inside only.

Inspect the filter after it is clean and dry. Place a light inside the filter and inspect for holes, tears, and dented or bent metal covering. If metal covering is dented or bent, inspect filter paper for holes or rub spots in that area. If holes or rub spots are noted, discard the filter and install a new filter element.

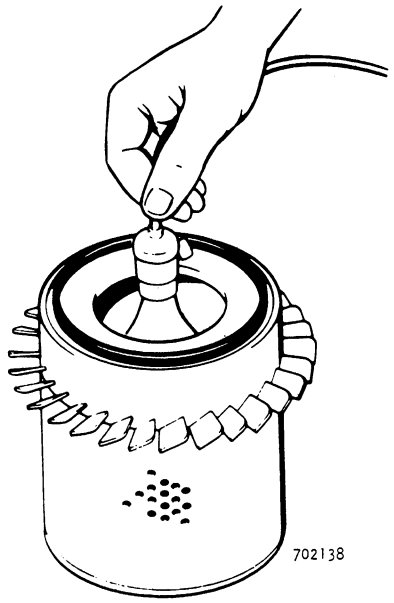

Figure 2 - Inspecting the Element

NOTE: Inspect new filter element in the same manner. Do not accept a defective filter.

The element must be replaced after it has been cleaned six times or once a year, whichever occurs first.

AIR CLEANER RESTRICTION INDICATOR

Specifications

Case No A59569
Manometer Test
Inches of water ..... 25 ± 2

Trouble Shooting

Refer to Figure 1.

1. The restriction indicator is serviced as an assembly only. It is non-adjustable.

2. If a distributor tester equipped with a manometer is available, the restriction indicator can be tested as follows:

   a. Remove the restriction indicator and attach the manometer hose to indicator.

   b. Turn on the tester. Turn tester vacuum regulator switch on and slowly increase the vacuum until the red signal band appears. The red band should be in full view at 25 ± 2" of water.

   c. If the restriction indicator does not meet this specification, it should be replaced. The indicator is nonadjustable.

Safety Filter (Filtered Fitting)

A safety filter is built into the air cleaner body, Figure 1. This filter prevents unfiltered air from entering the engine if the tube to the restriction indicator or the indicator itself becomes damaged.

The safety filter will plug up with continued operation if a leak occurs. When the filter becomes plugged the restriction indicator will fail to operate.

Checking for Plugged Safety Filter

Refer to Figure 1.

1. Expose the air intake pipe.

2. Start the engine. Block off the air intake pipe. If the red signal band in the restriction indicator fails to appear, the safety filter is plugged.

3. Remove the air cleaner body and try to clean filter with compressed air. If filter cannot be unplugged replace body, or make field repair.

Section 2052

ENGINE, GOVERNOR AND DRIVE COUPLING

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SPECIFICATIONS

Engine Specifications

Low idle	800 ± 25 rpm (r/min)
High idle	3600 ± 50 rpm (r/min)
Firing order	1-3-4-2 (No. 1 cylinder at flywheel end)
Cylinder compression at cranking speed with throttle wide open	135-155 psi (930-1068 kPa) Maximum allowable difference between high and low reading is 10 percent.
Bore	2.75" (69.8 mm)
Stroke	2.83" (71.8 mm)
Displacement	76.6 cubic inches (1107 cm^3)
Compression ratio	8.5:1
Valve clearance, engine cold	
Intake	.005" (.127 mm)
Exhaust	.008" (.203 mm)

NOTE: A hot engine is considered cold after sitting 50 minutes.

Crankcase capacity	
Without filter change	2-3/4 U.S. quarts (2.6 liters)
With filter change	3 U.S. quarts (2.8 liters)
Oil pressure	
at 800 rpm (800 r/min)	10 pounds (4.5 kg)
at full throttle	50 pounds (22.7 kg)
Valve seat angle, intake and exhaust	45°
Cylinder head flatness	Refer to page 2052-10, Disassembly, step 5
Rocker arm wear	Refer to page 2052-13
Valve guide wear	Refer to page 2052-11
Sleeve bore wear	.008' (.203 mm). Also refer to page 2052-19.
Sleeve projection above block	.002" - .005" (.51 - .127 mm)

NOTE: Refer to Section 8013 for complete ignition system specifications.

Special Torques

Cylinder head bolts	40-50 foot-pounds (54-68 N m)
Camshaft timing gear bolt	15 foot-pounds (20 N m)
Main bearing cap bolts	40-50 foot-pounds (54-68 N m)
Connecting rod bearing cap bolts	25-30 foot-pounds (34-40 N m)
Flywheel mounting bolts	35-40 foot-pounds (47-54 N m)
Crankshaft pulley bolt	54 foot-pounds (73 N m)
Manifold bolts, end	9 foot-pounds (12 N m)
Manifold bolts, center	12 foot-pounds (16 N m)
Spark plugs	25-30 foot-pounds (34-40 N m)
Rear engine mount to block cap screws	30-40 foot-pounds (41-54 N m)

SPECIAL TOOLS

In addition to the tools illustrated, a 2" micrometer, depth micrometer, inside micrometer, dial indicator, small bore gauge (ball type) and a foot-pound torque wrench will be required.

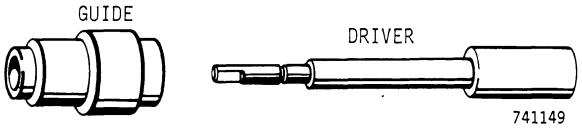

Figure 1 - D62915 Tool Kit for Valve Guide Removal and Installation

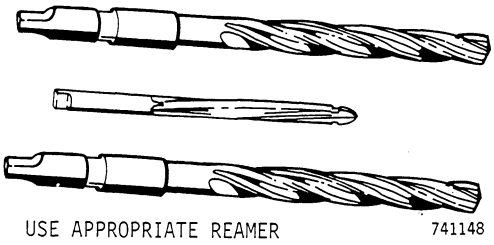

Figure 2 - D62916 Valve Guide Reamer Kit

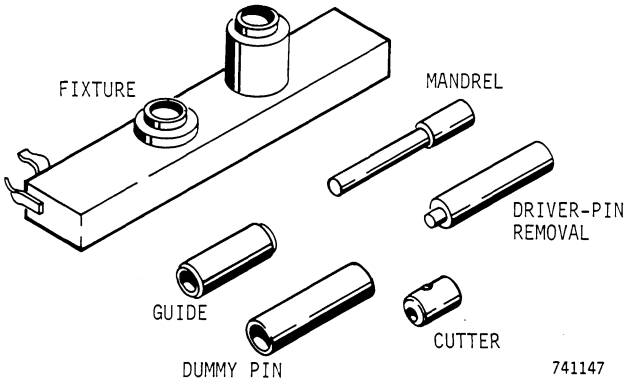

Figure 3 - D62919 Tool Kit for Wrist Pin Removal and Installation

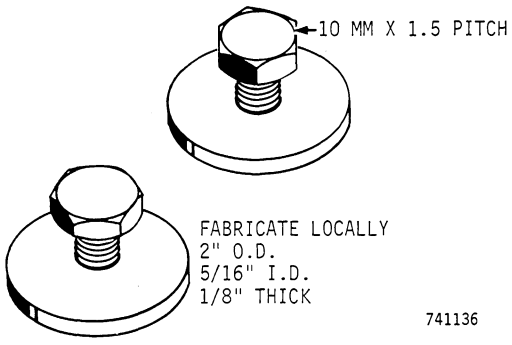

Figure 4 - Sleeve Locks

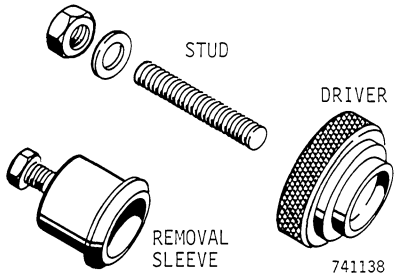

Figure 5 - D62920 Tool Kit for Timing Gear Cover Seal Removal and Installation

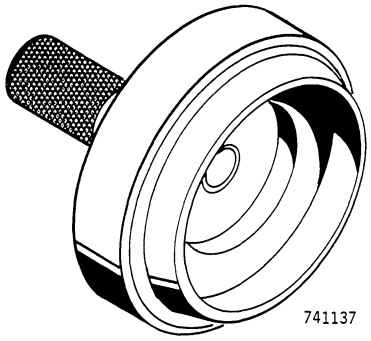

Figure 6 - D62917 Main Bearing Seal Driver

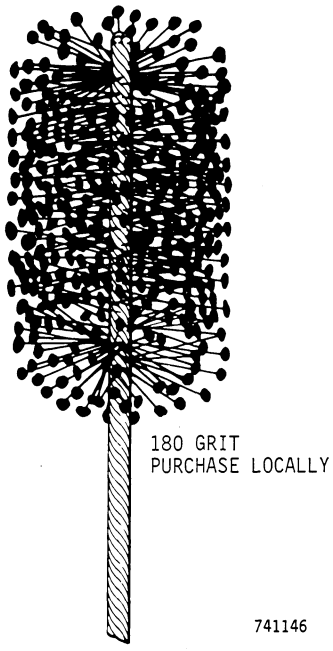

Figure 7 - Sleeve Deglazing Brush

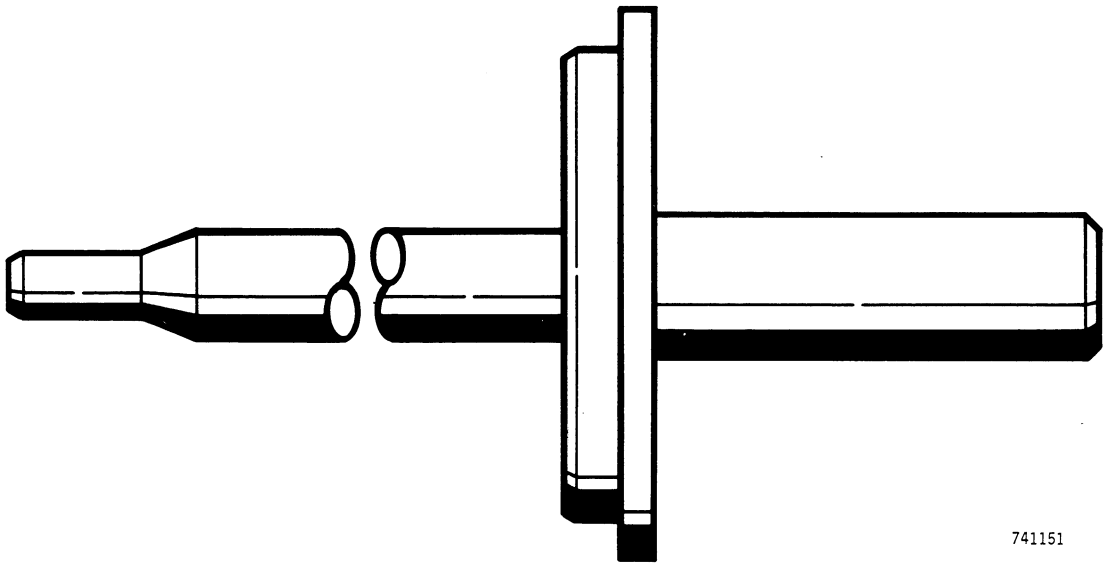

Figure 8 - D59985 Alignment Tool for Installing Drive Coupling and Flywheel Housing

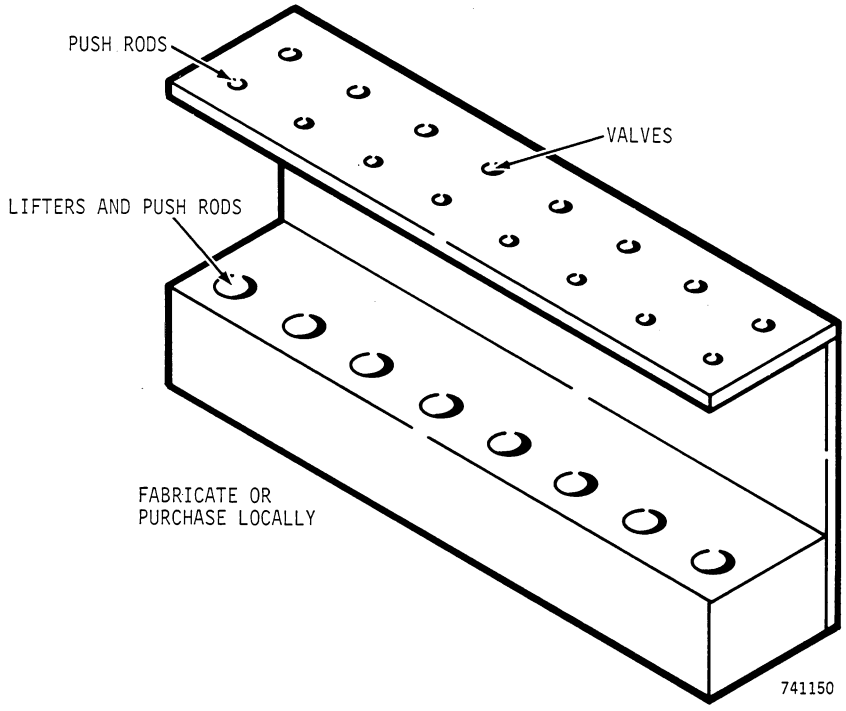

Figure 9 - Storage Rack for Valves, Push Rods and Lifters

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