

R.D.T. STEERING CONTROL SYSTEM



TEREX

PRODUCT TRAINING PRESENTATION



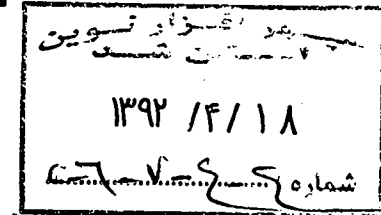
C-6-7-4-4
con code = 214
TR-001TR/RDT-6

4000032/2

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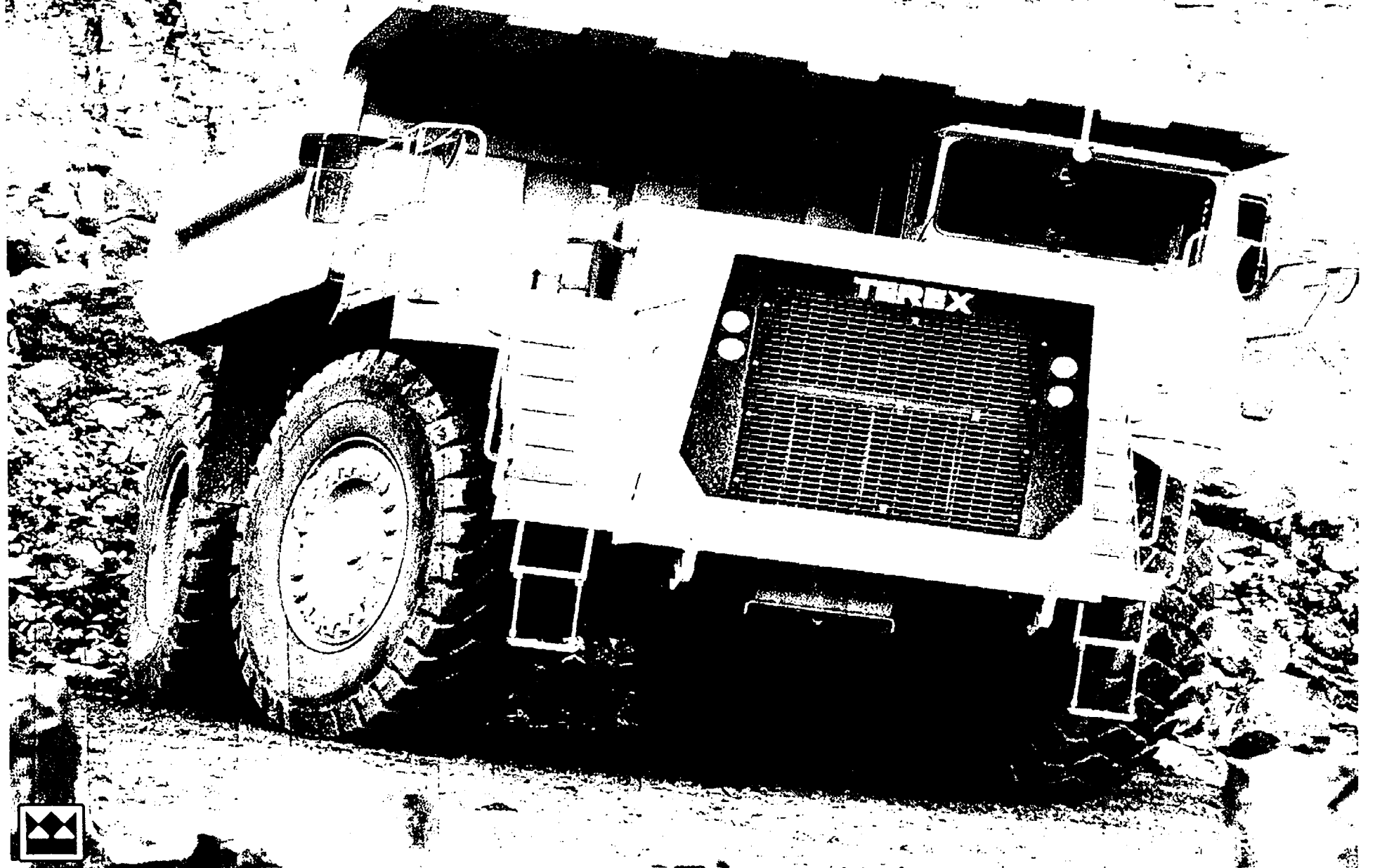
oth: Terex 220304



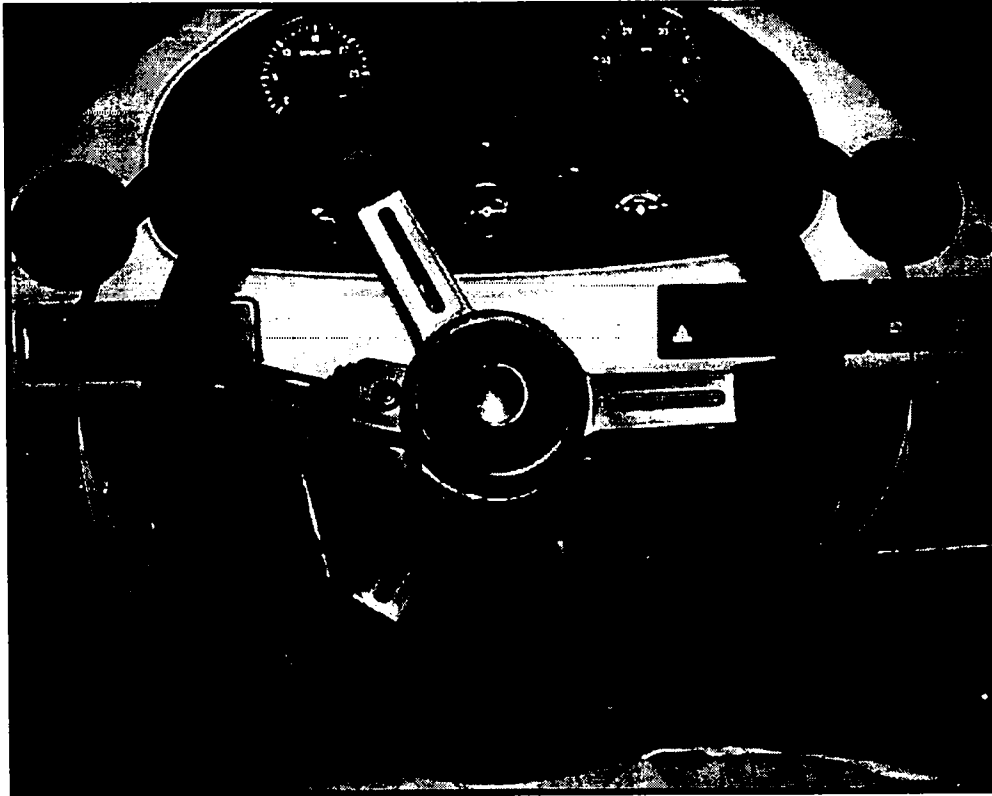
MANE

PRODUCT TRAINING

R.D.T. STEERING CONTROL SYSTEMS



WARNING

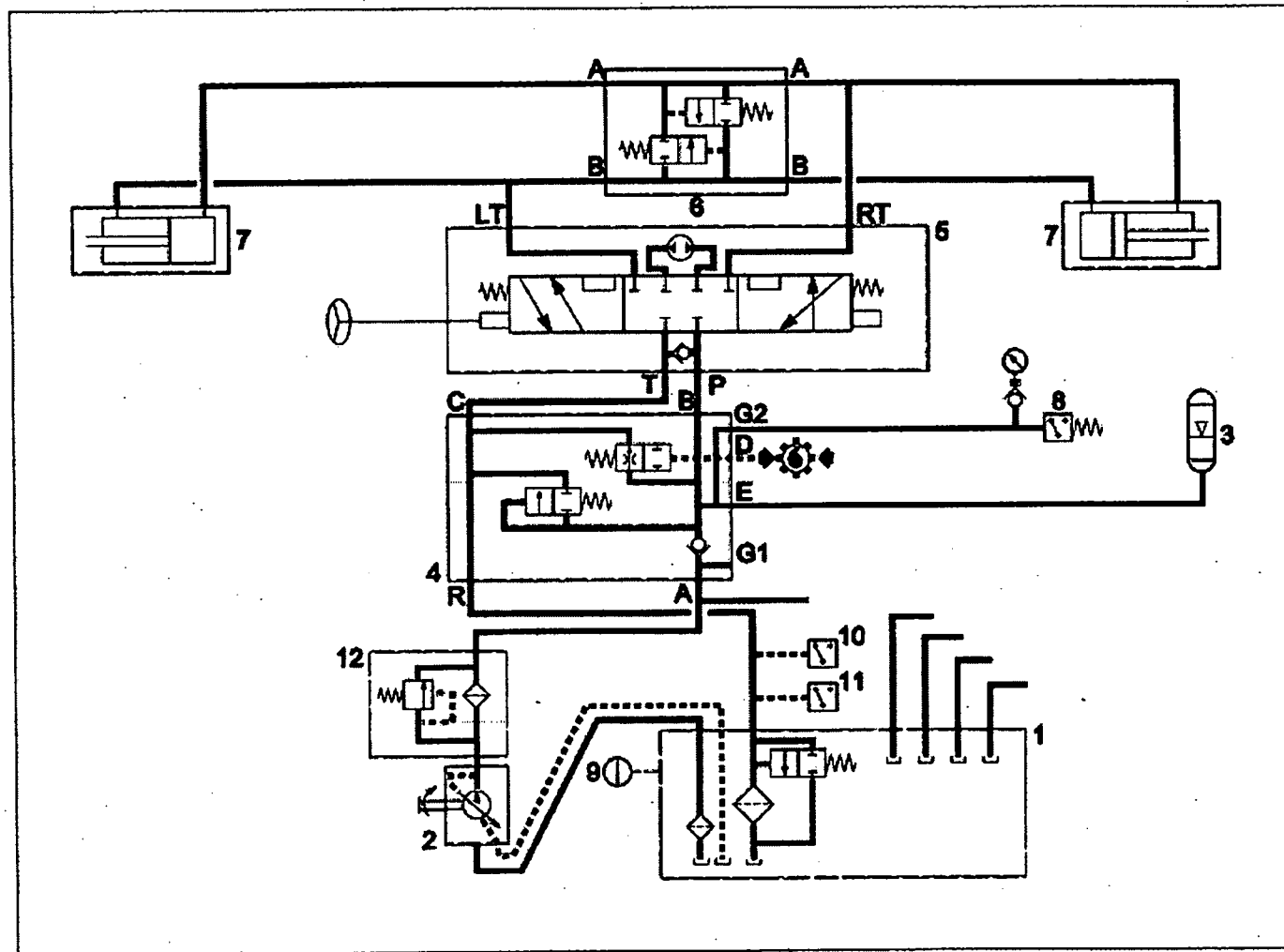


**PRIOR TO SERVICE WORK & ROUTINE
MAINTENANCE BEING CARRIED OUT
ON THE STEERING CIRCUIT**

**DEplete STORED PRESSURE BY
TURNING STEERING WHEEL BACK
AND FORTH UNTIL STEERING LOCKS.**

RDT STEERING CONTROL SCHEMAT C

- 1 STEERING HYDRAULIC TANK
- 2 STEERING PUMP
- 3 STEERING ACCUMULATOR
- 4 ACCUMULATOR VALVE
- 5 STEERING ORBITROL VALVE
- 6 DOUBLE RELIEF VALVE (SHOCK)
- 7 STEERING CYLINDERS
- 8 STEERING PRESSURE SW.
- 9 OIL LEVEL SW.
- 10 OIL PRESSURE RESTRICTION SWITCH.
- 11 OIL TEMPERATURE SW.
- 12 STEERING PRESSURE FILTER

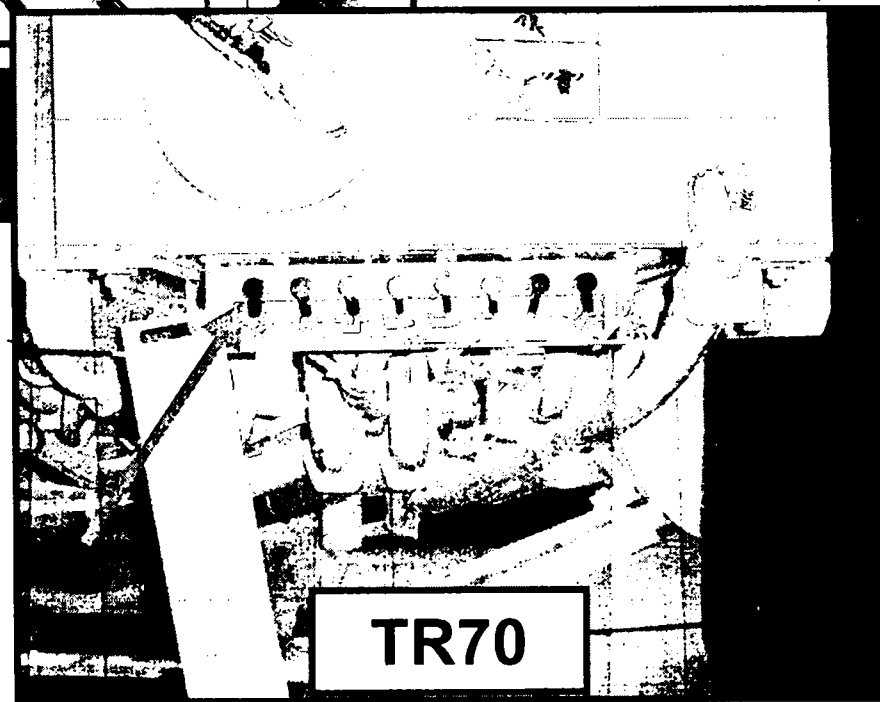
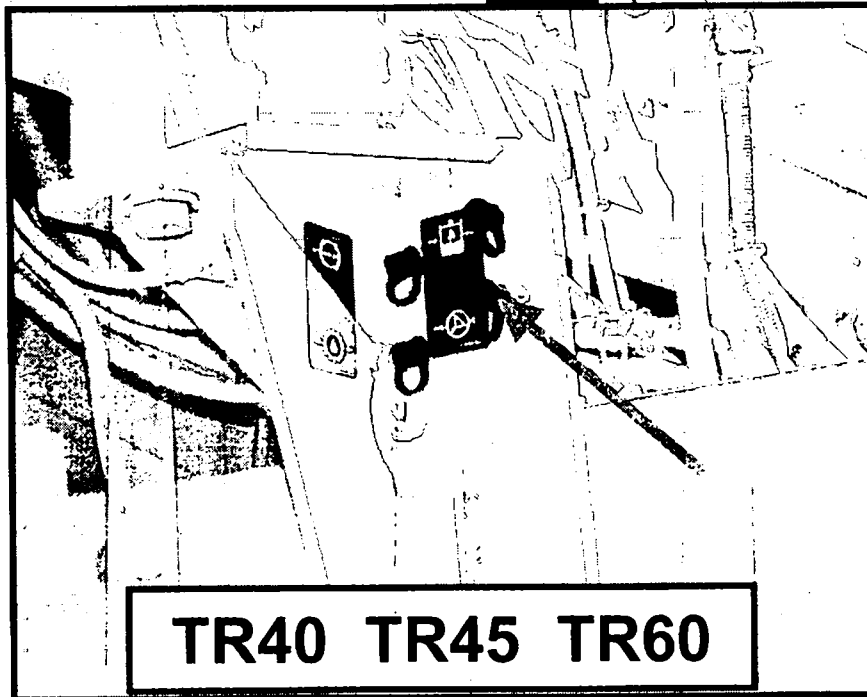
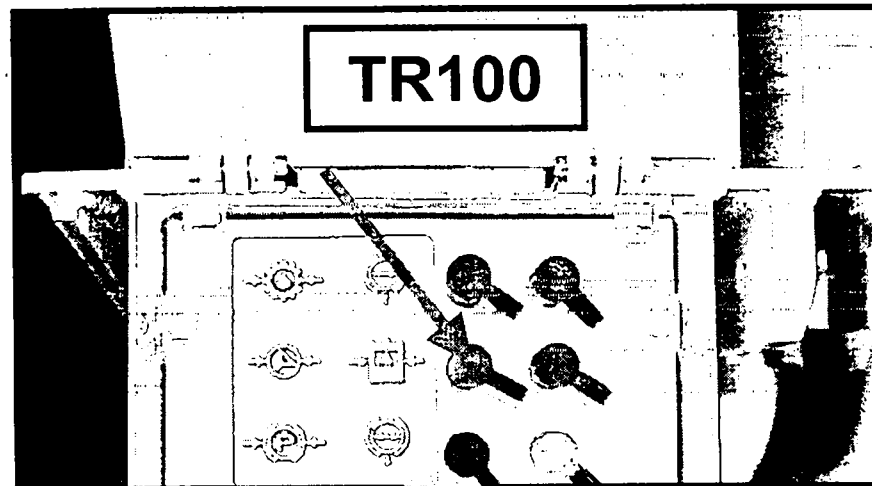


STEERING SYSTEM PRESSURES

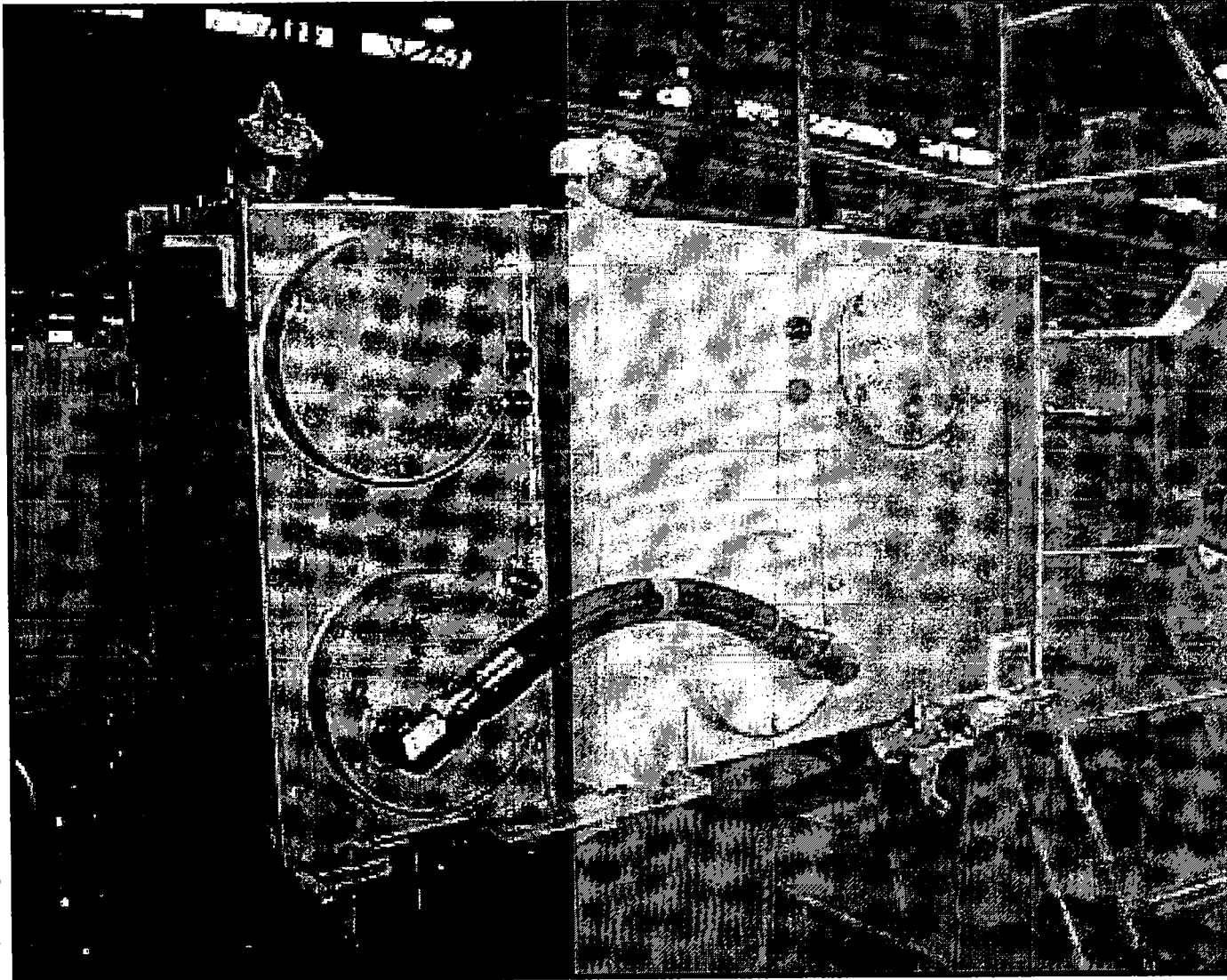
		TR	TR	TR	TR	TR
SYSTEM PRESSURE	bar					
	psi					
DOUBLE RELIEF VALVE	bar					
	psi					
LOW STEERING WARNING	bar					
	psi					
SECONDARY RELIEF	bar					
	psi					
ACCUMULATOR NITROGEN PRECHARGE @ °C	bar					
	psi					
PUMP CAPACITY @ REV/MIN	L/Min					
	Rev/Min					



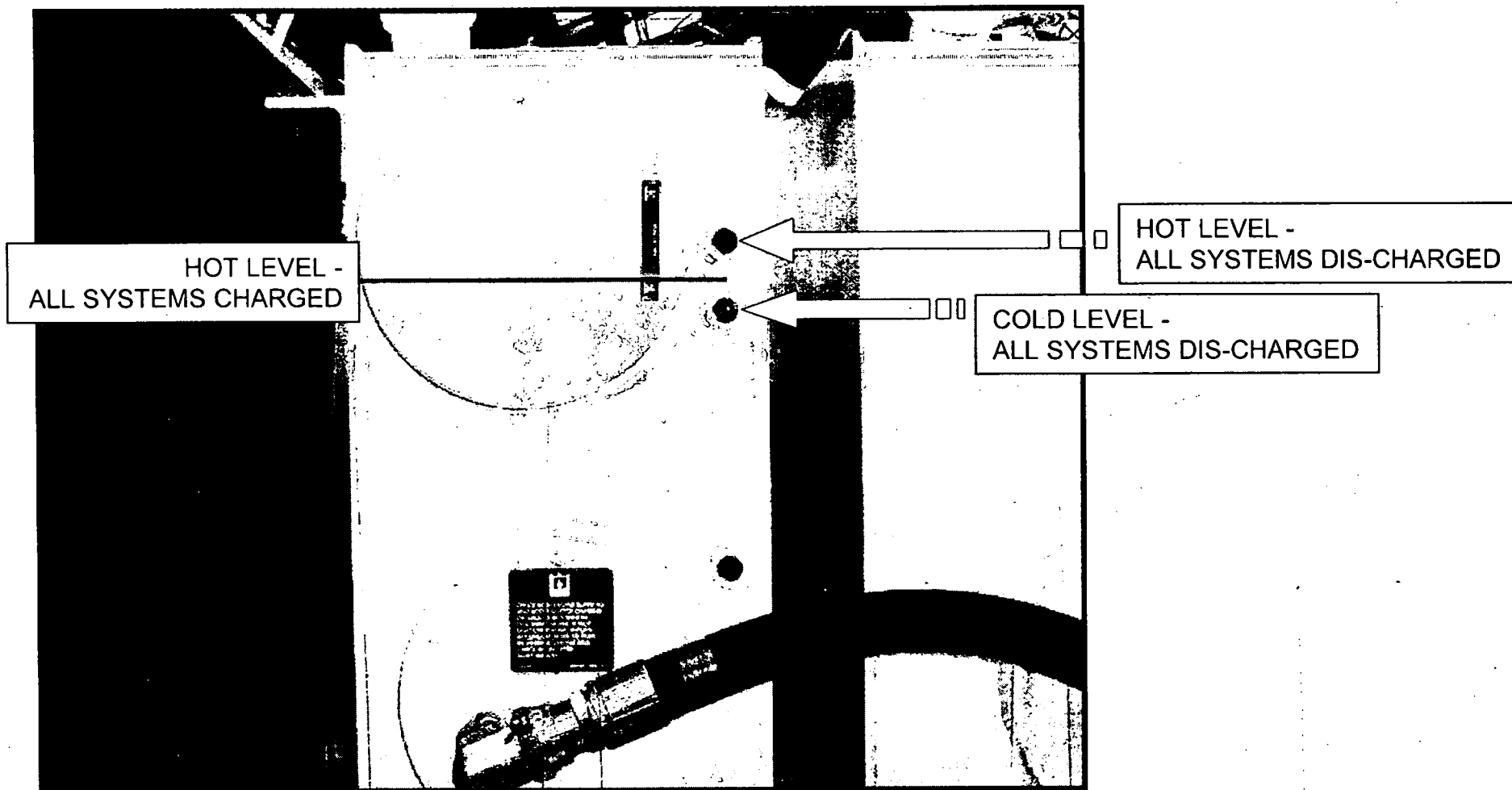
D AGNOSTIC CHECK POINTS



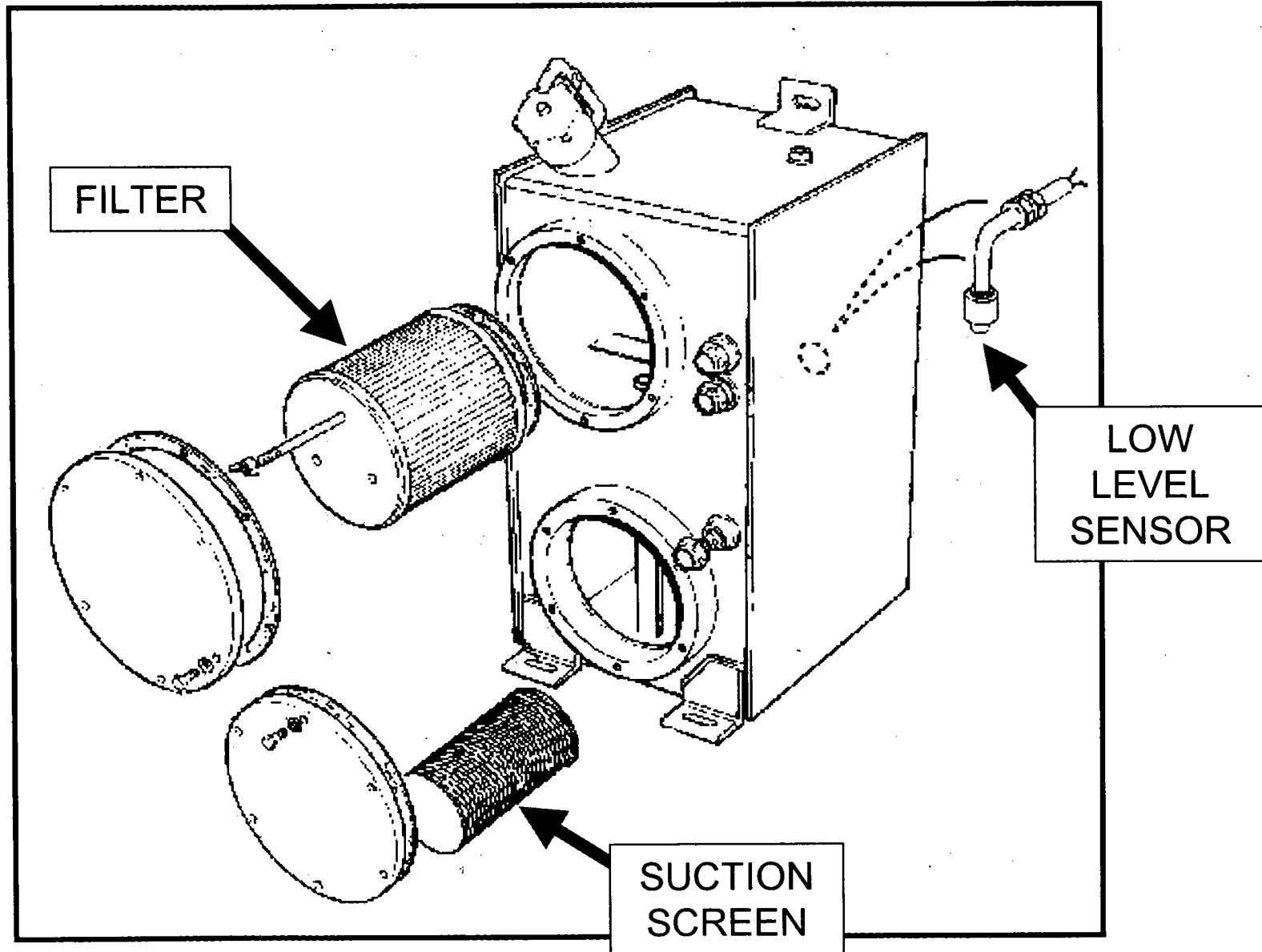
STEERING HYDRAUL C TANK (1)



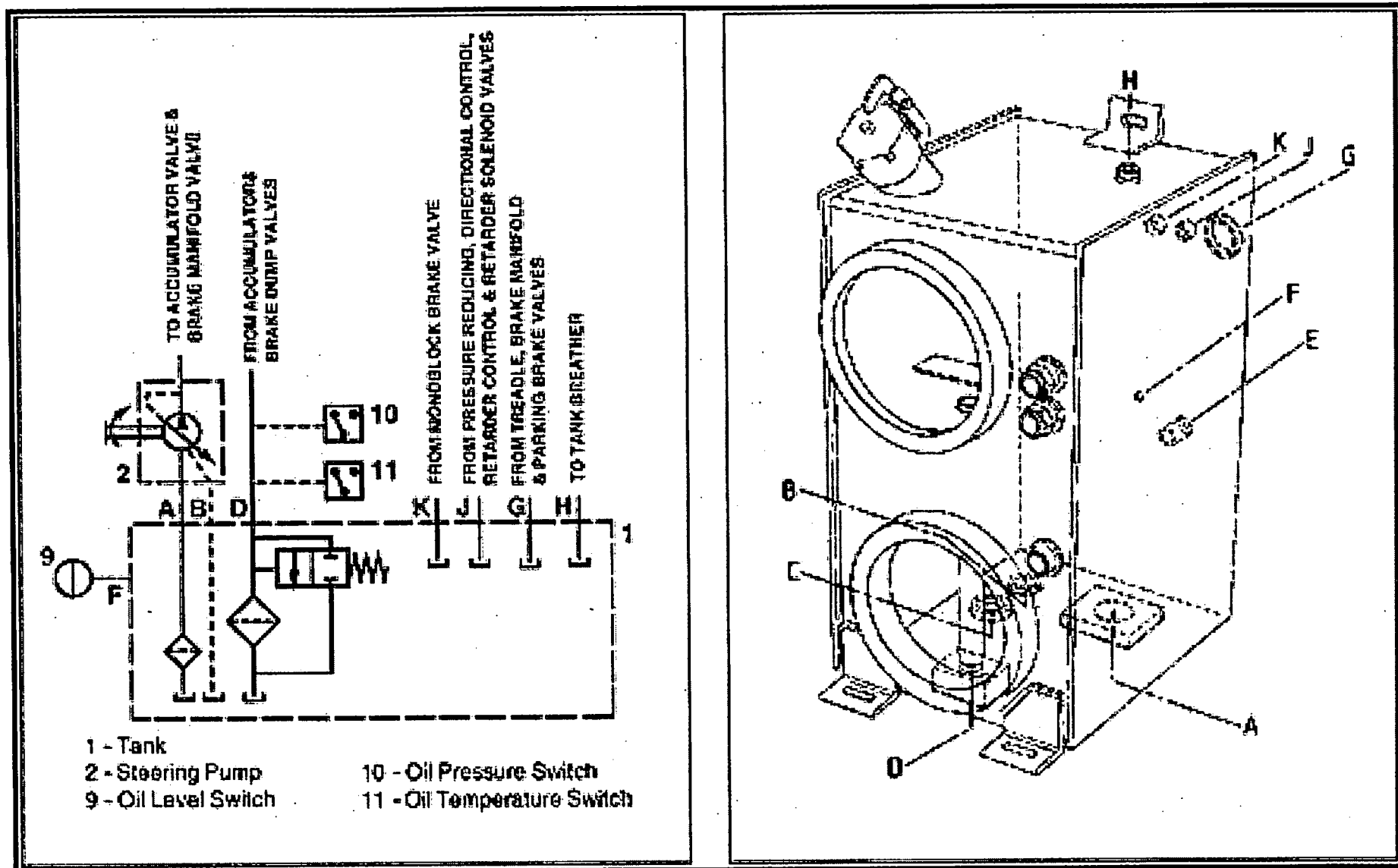
STEERING HYDRAUL C TANK - LEVELS



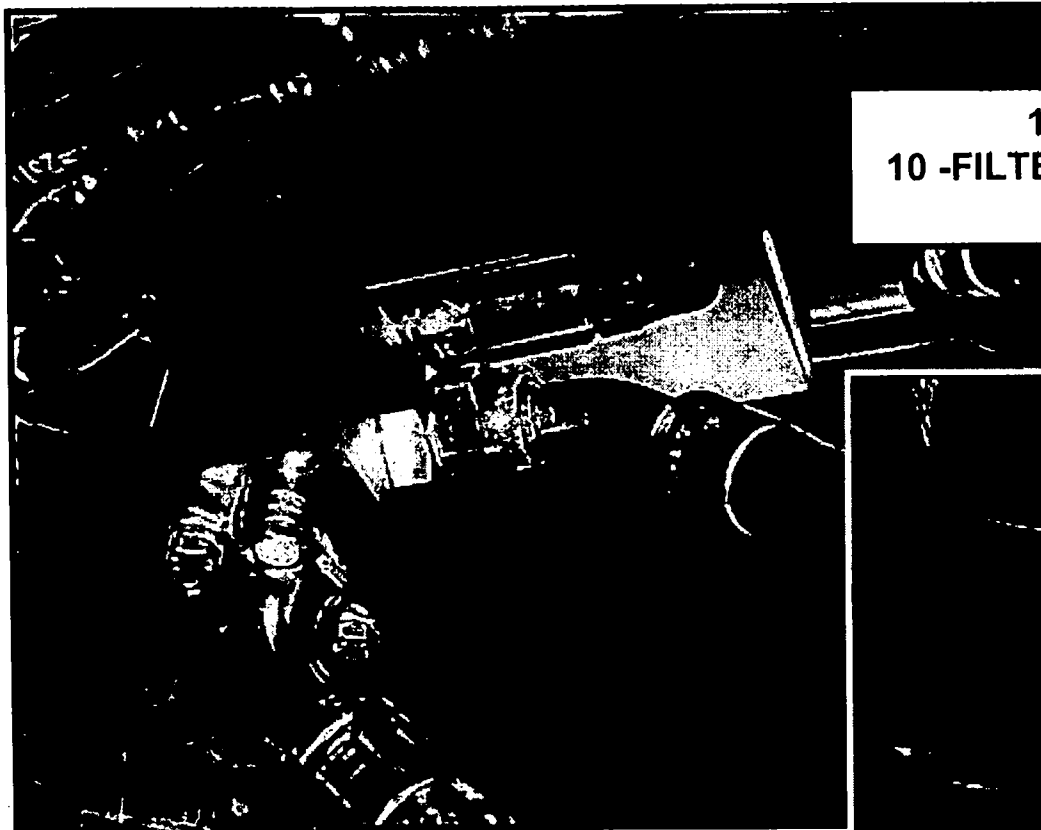
STEERING HYDRAUL C TANK (1)



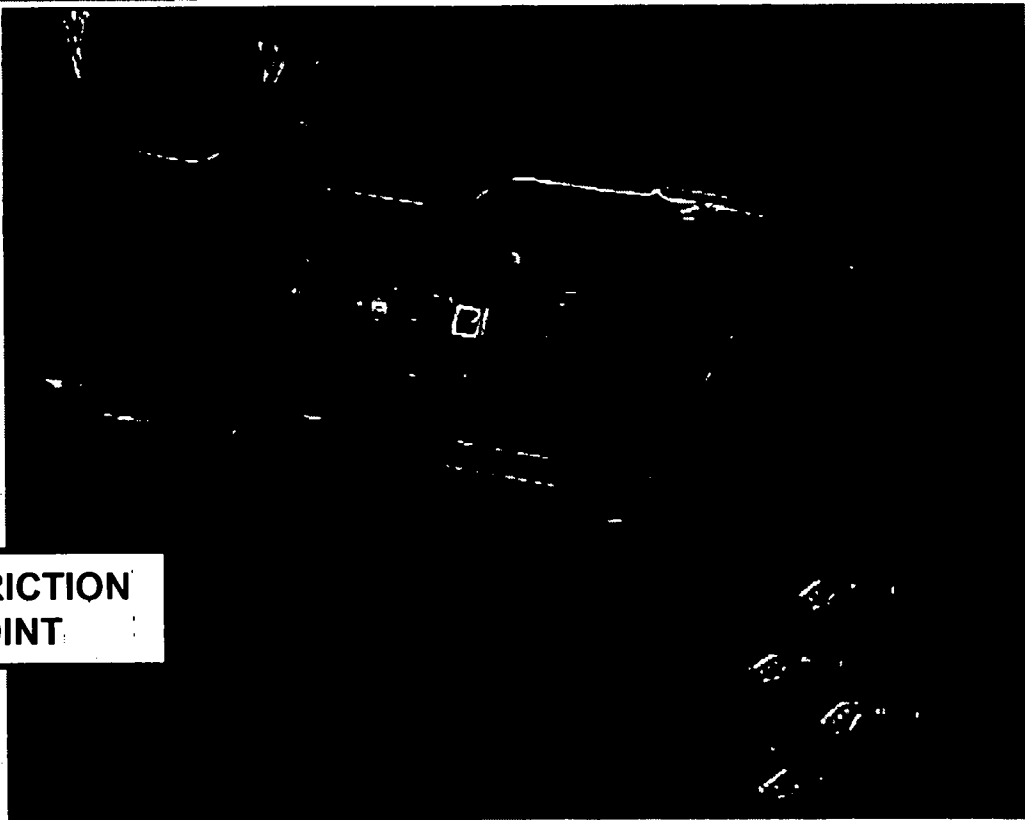
STEERING TANK PORTING



FILTER SWITCHES

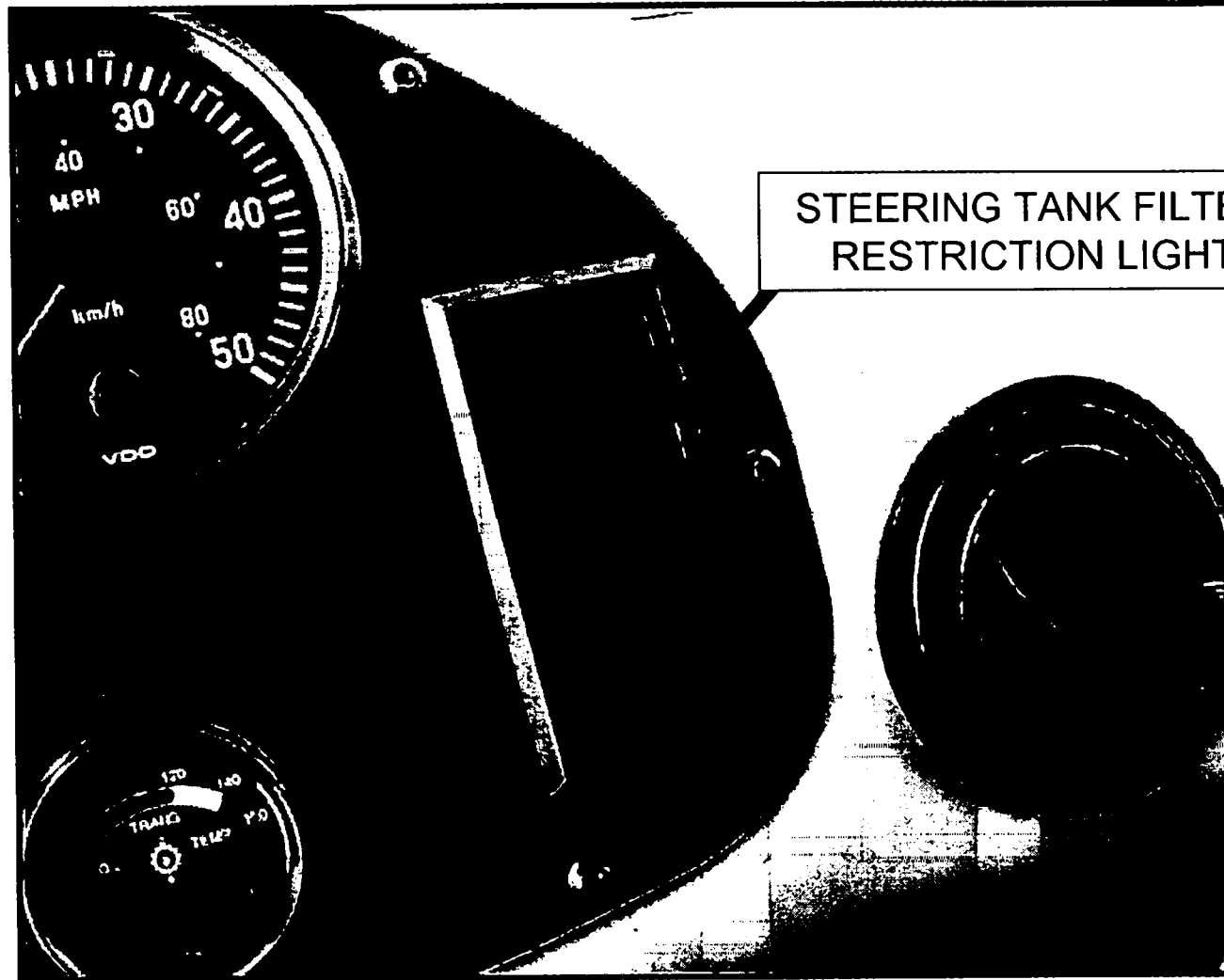


11 - OIL TEMPERATURE - (TOP)
10 - FILTER RESTRICTION SWITCH - 2.7 BAR (39 PSI)
(BOTTOM)



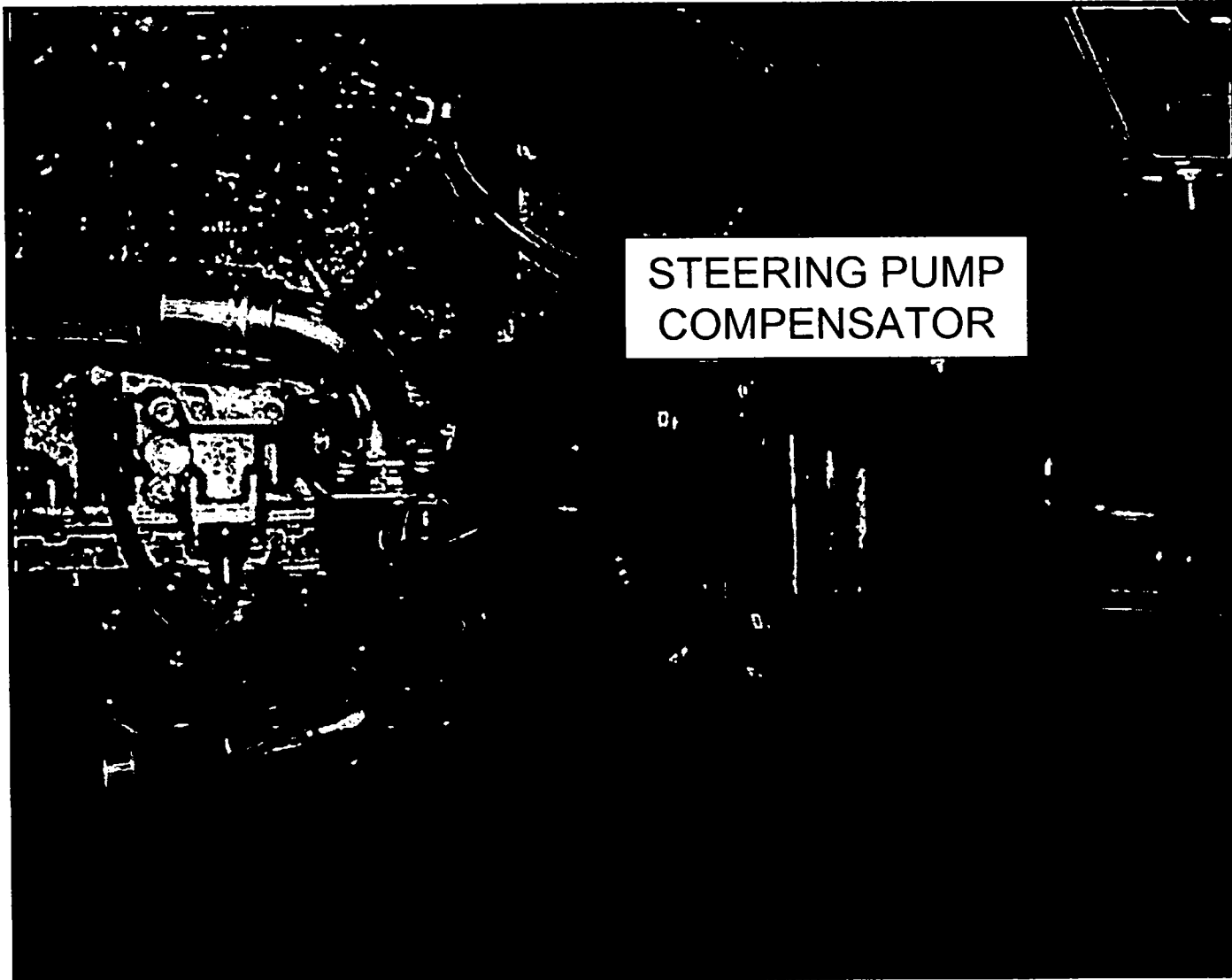
FILTER RESTRICTION
CHECK POINT

FILTER RESTRICTION LIGHT



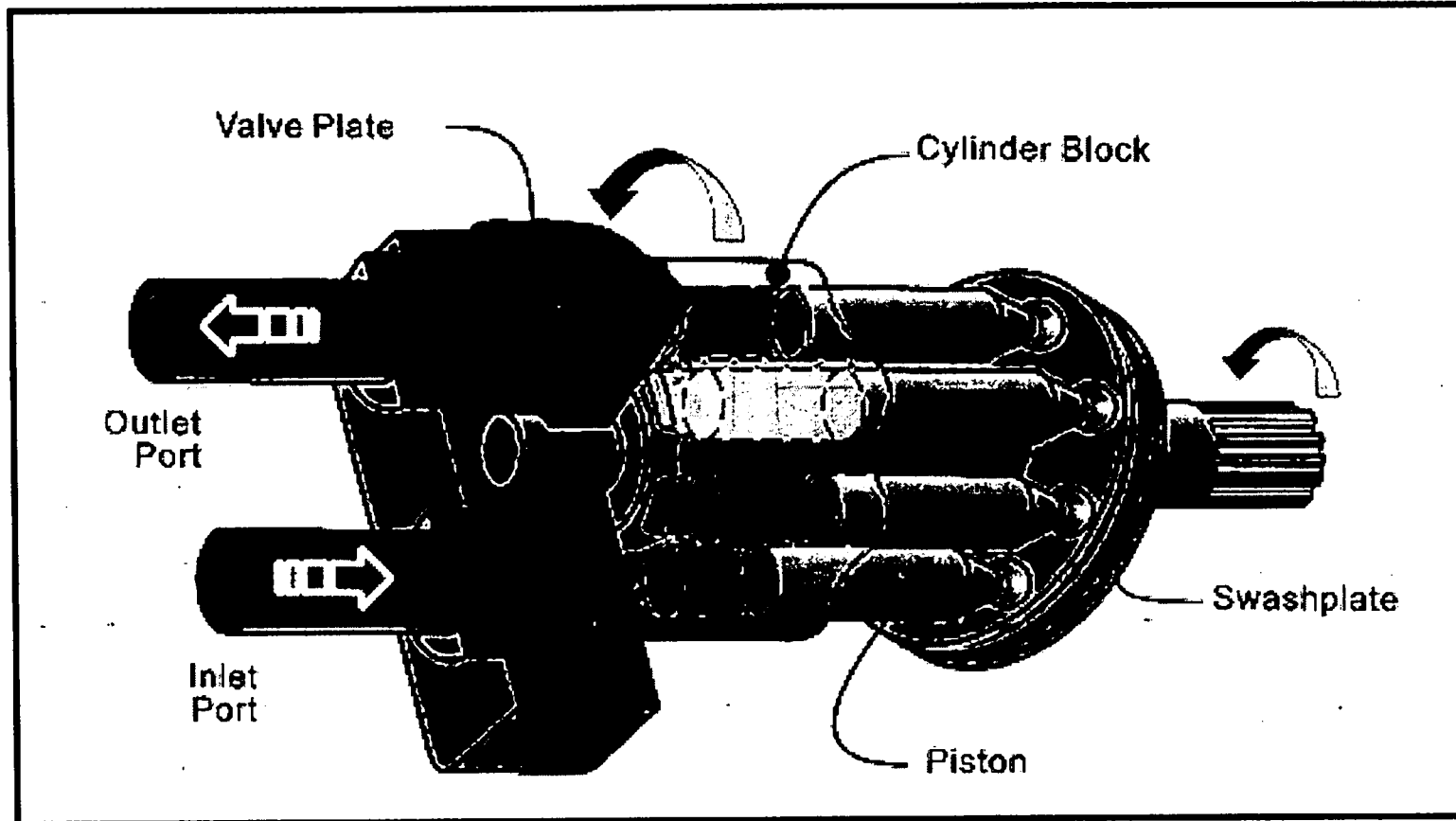
STEERING TANK FILTER
RESTRICTION LIGHT

STEERING PUMP (2)



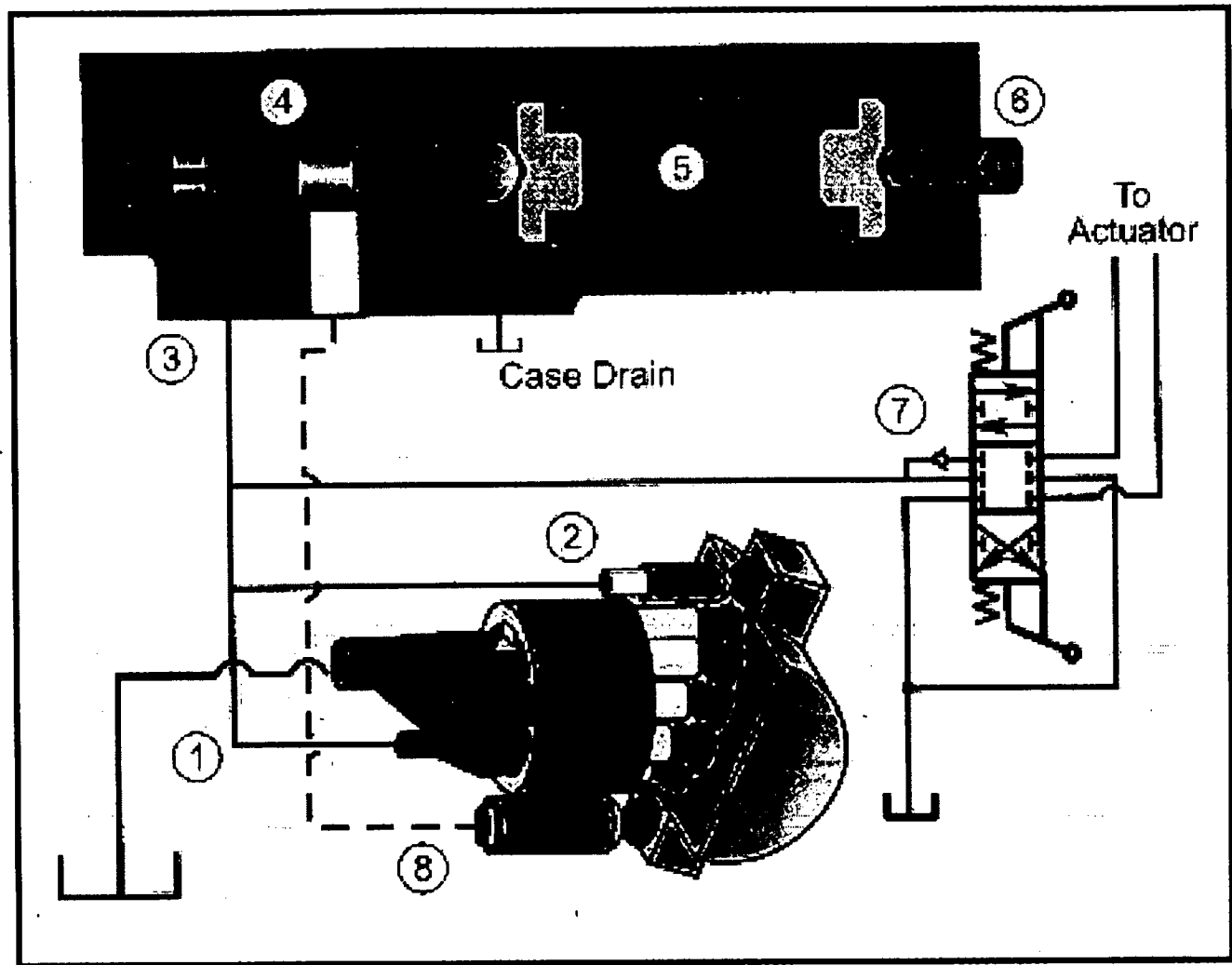
COMPENSATOR SETTING 159 BAR (2300 PSI)

STEERING PUMP - VARIABLE DISPLACEMENT

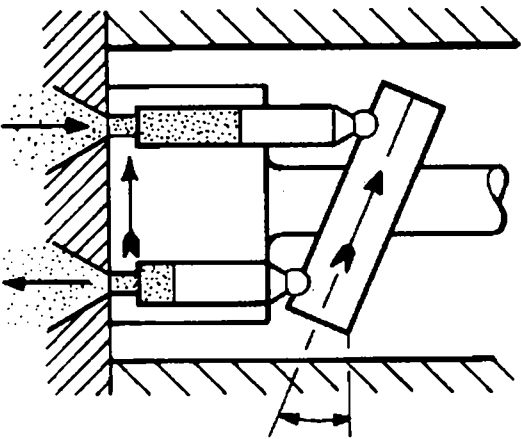


STEERING PUMP - COMPENSATOR LAYOUT

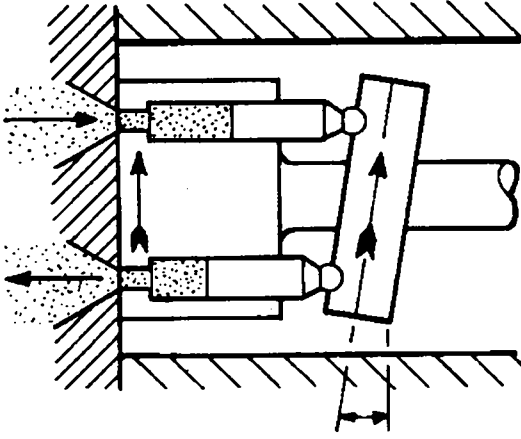
- 1 PUMP OUTLET PRESSURE
- 2 BIAS PISTON
- 3 PUMP COMPENSATOR
- 4 COMPENSATOR LIMITING SPOOL
- 5 COMPENSATOR SPRING
- 6 COMPENSATOR ADJUSTMENT
- 7 ACTUATION VALVE (STEERING ORBITROL/BRAKE VALVE)
- 8 CONTROL PISTON



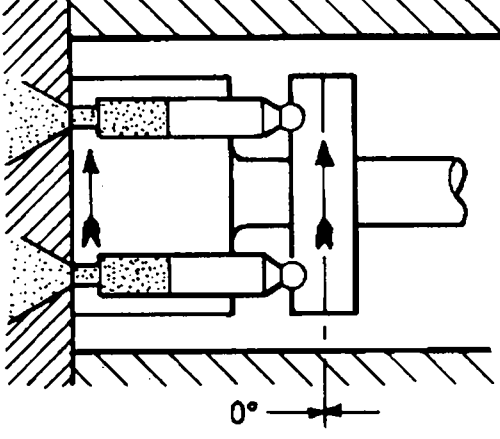
STEERING PUMP - DISPLACEMENT



MAXIMUM SHOE PLATE ANGLE
(MAXIMUM DISPLACEMENT)



DECREASED SHOE PLATE ANGLE
(PARTIAL DISPLACEMENT)



ZERO SHOE PLATE ANGLE
(MINIMUM DISPLACEMENT)

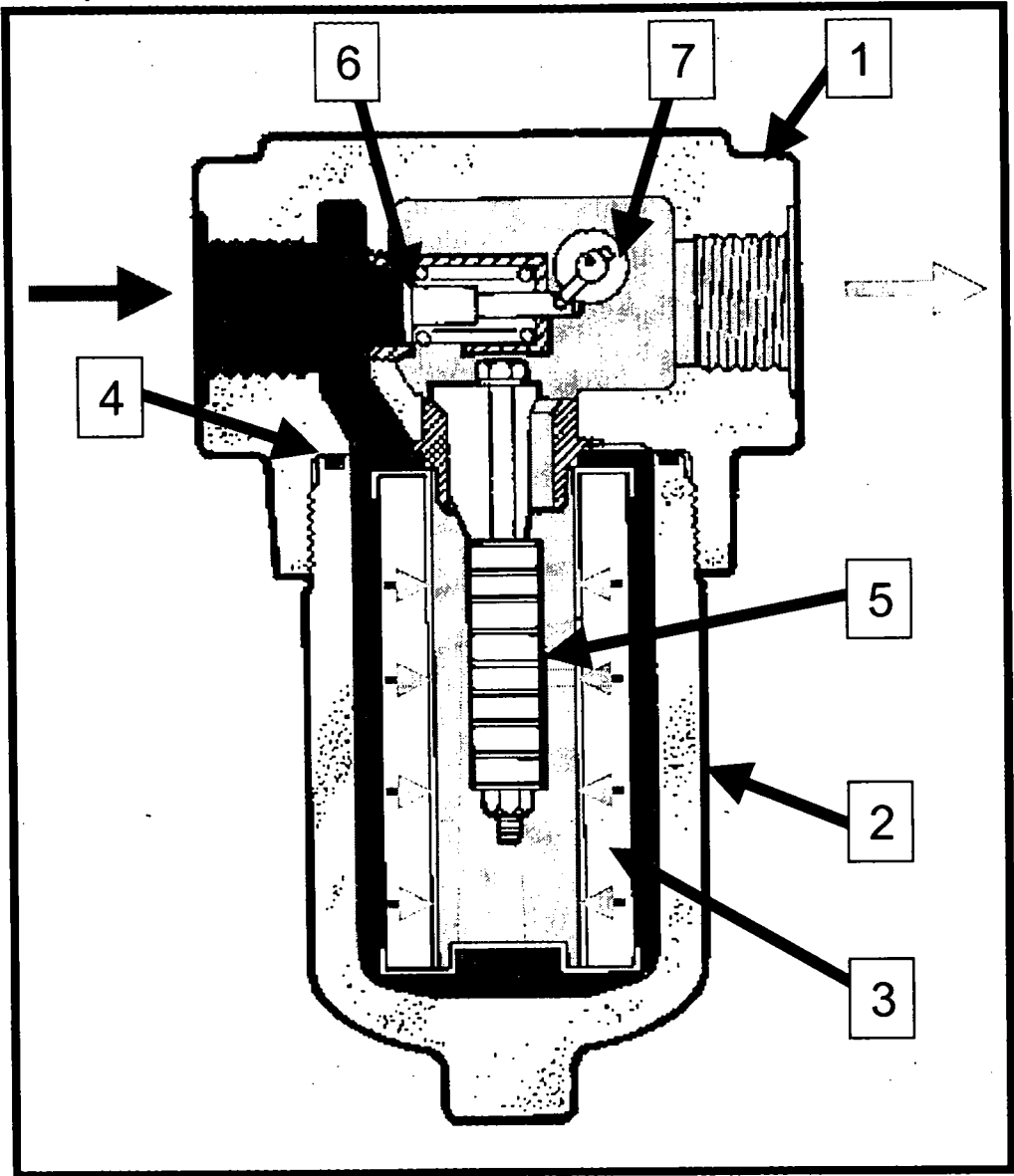
مرکز اسناد علمی
کلی شهر

STEERING FILTER (12)



VISUAL INDICATOR

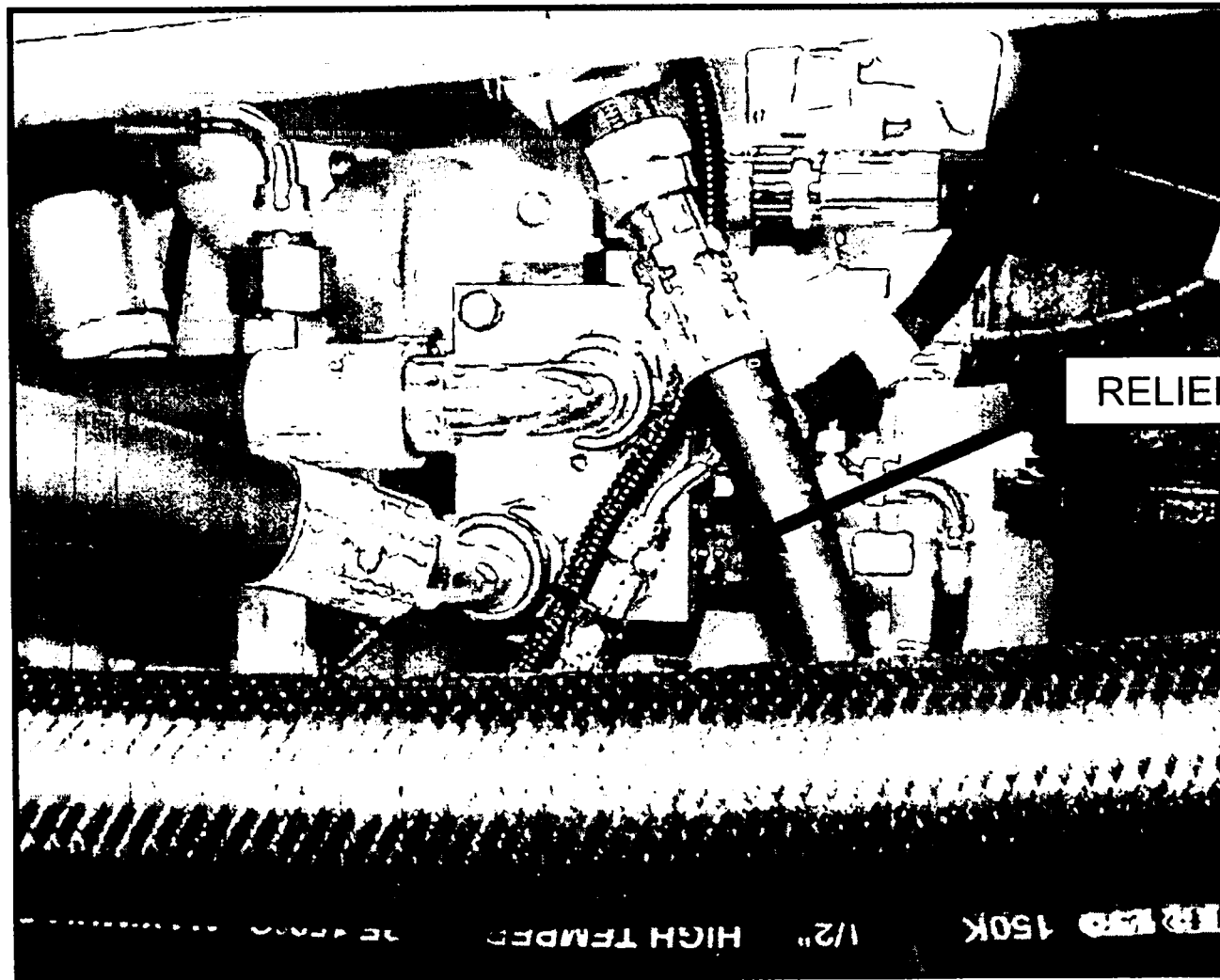
STEERING FILTER (12) - SECT ON



- 1. FILTER HEAD
- 2. FILTER CAN
- 3. FILTER ELEMENT
- 4. O-RING
- 5. MAGNETS
- 6. BYPASS VALVE
- 7. INDICATOR LINK

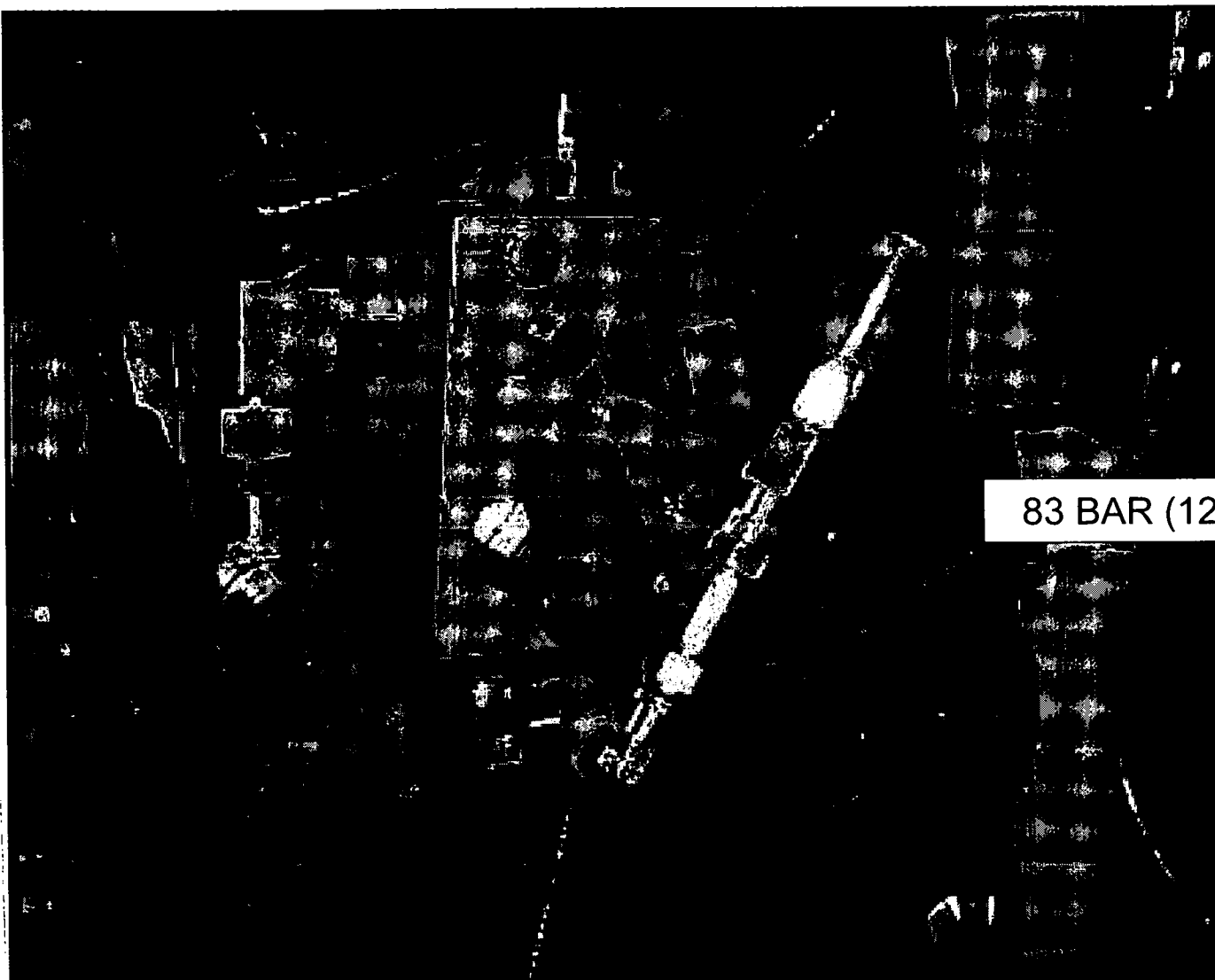
CHANGE OUT ELEMENT IF INDICATOR
IN YELLOW OR AFTER 1000 hrs.
WHATEVER COMES FIRST.

STEERING ACCUMULATOR VALVE (4)



RELIEF VALVE SETTING 207 BAR (3000 PSI)

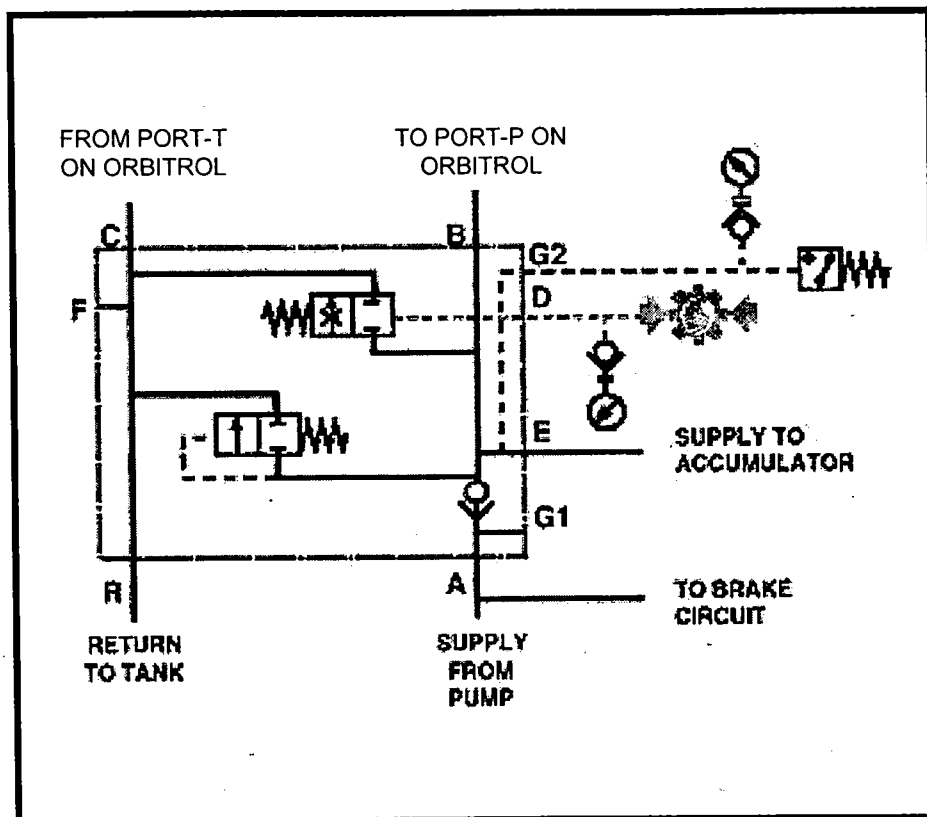
LOW STEERING SWITCH (8)



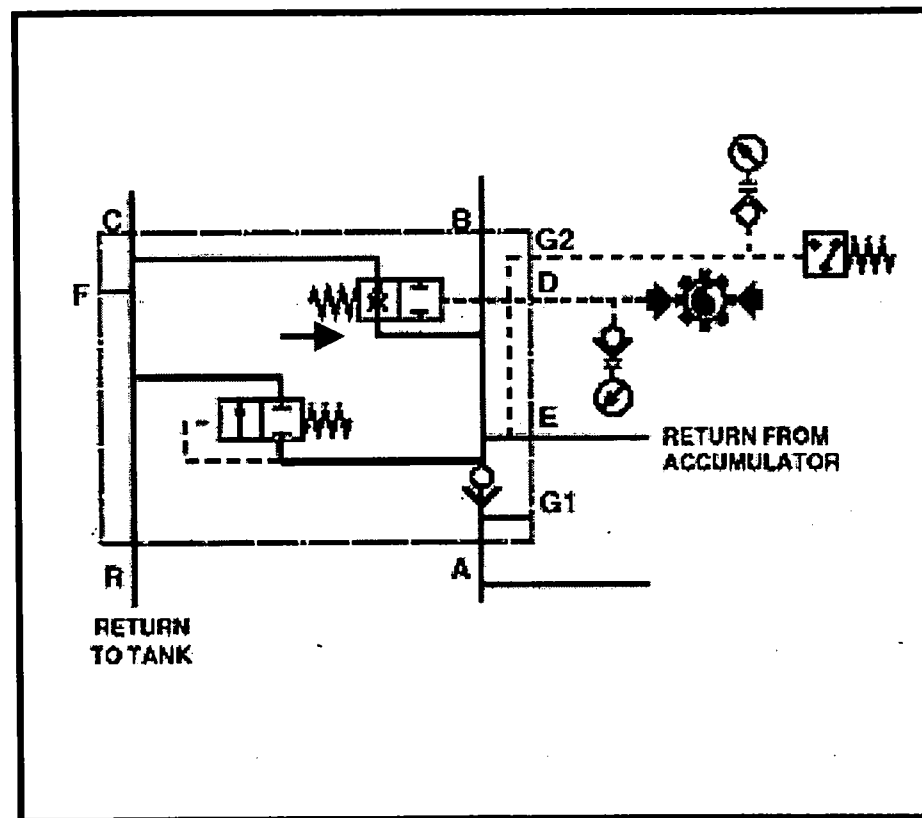
83 BAR (1200 PSI)

TYPICAL INSTALLATION

ACCUMULATOR VALVE SCHEMATICS (8)

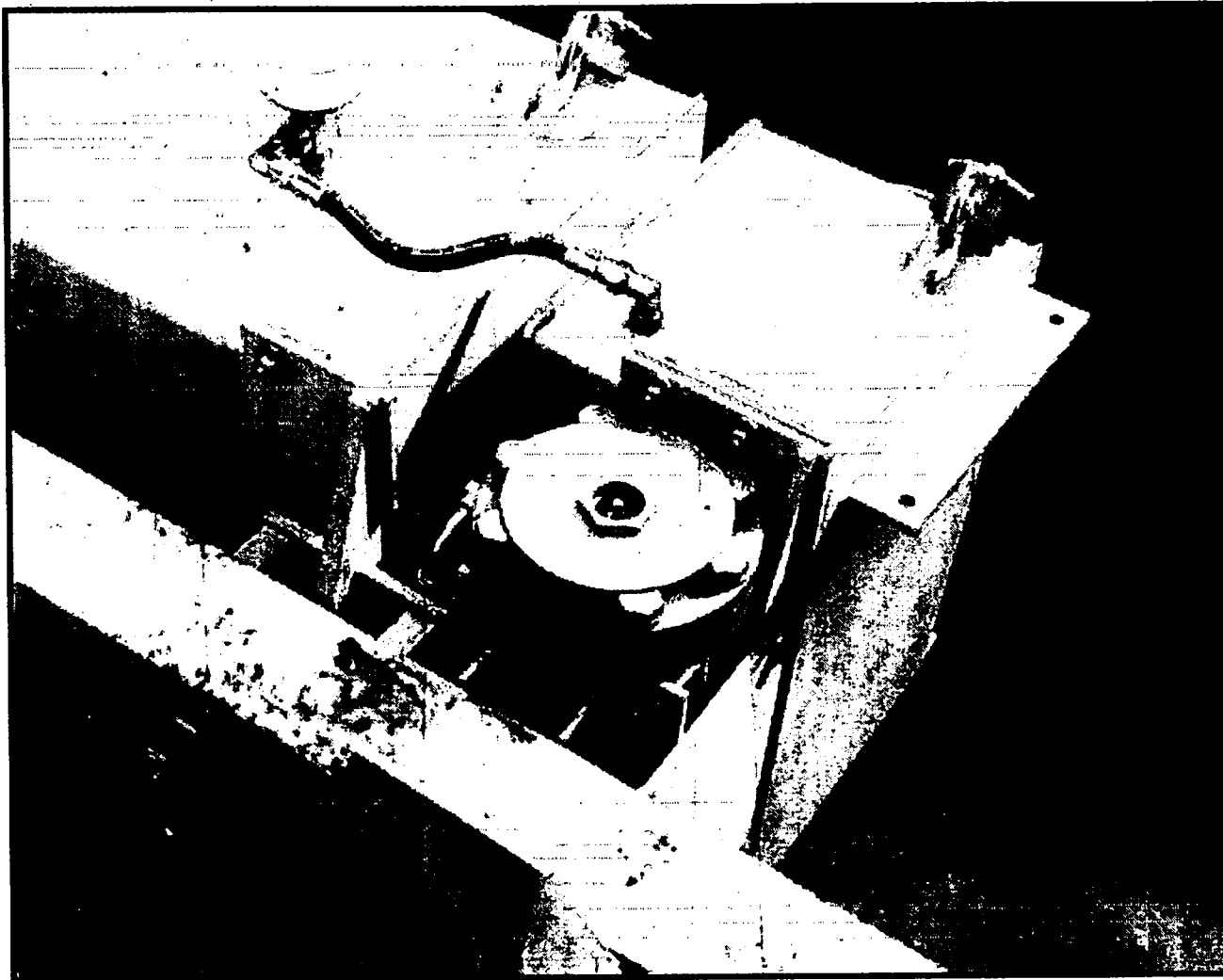


STEERING SYSTEM ENERGISED



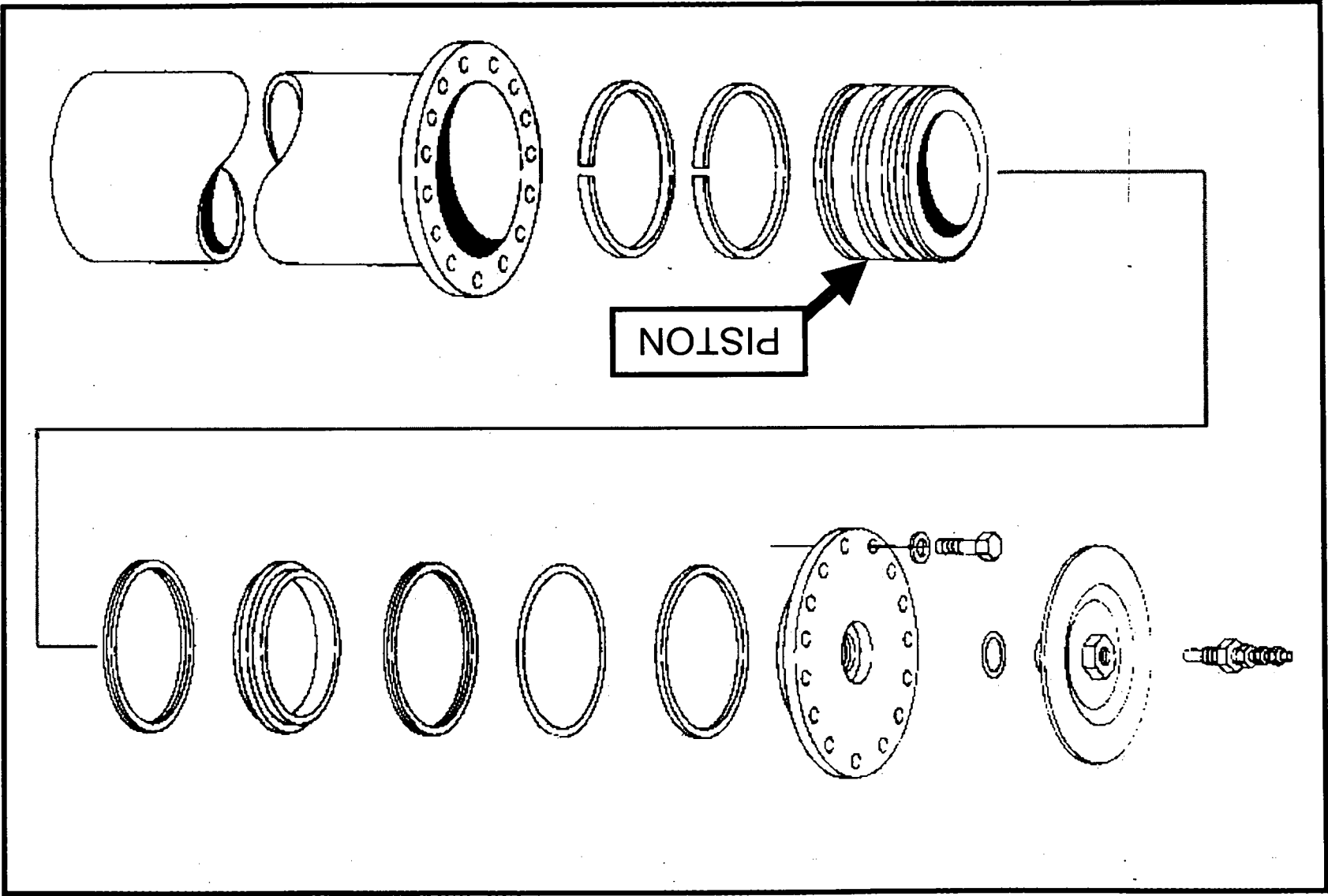
STEERING SYSTEM DE-ENERGISED

STEERING ACCUMULATOR (3)



**HIGH
PRESSURE**

**NITROGEN PRE-CHARGE
55 BAR (800 PSI)**



STEERING ACCUMULATOR (3)

STEERING ACCUMULATOR TR70/100 (3)

TRI-STACK ACCUMULATOR
TR70 T7891075 and above
TR100 T7831187 and above

LEGEND

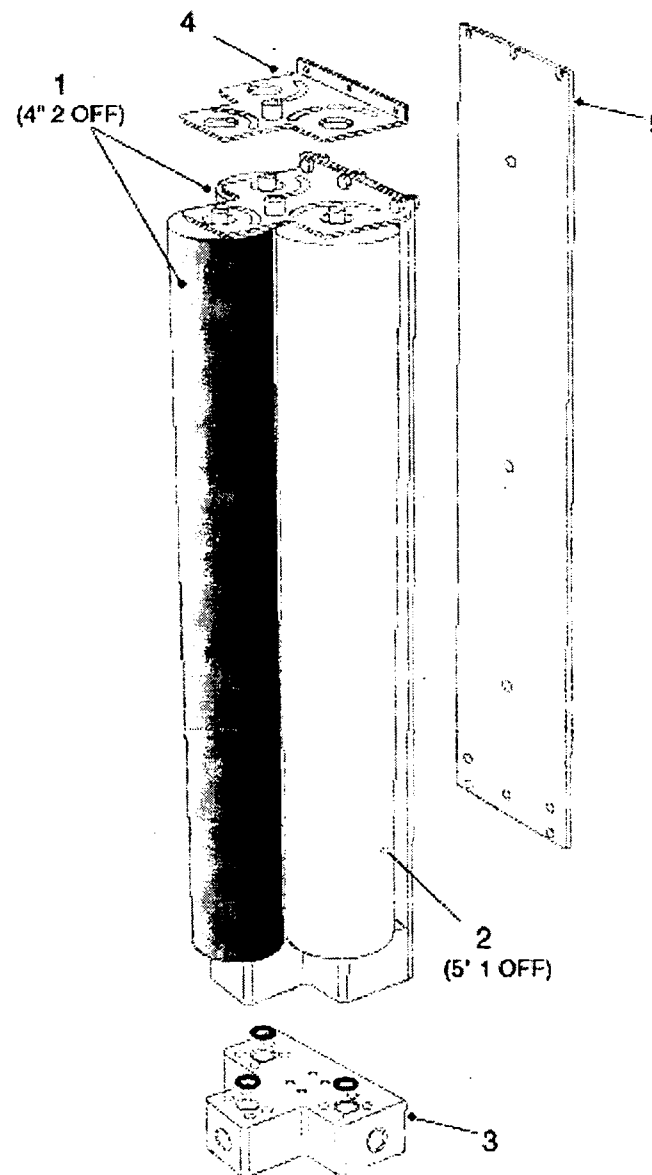
- 1 Ø100mm PISTON ACCUMULATOR - 2 OFF
- 2 Ø127mm PISTON ACCUMULATOR - 1 OFF
- 3 OIL MANIFOLD BLOCK
- 4 SUPPORT PLATE
- 5 MOUNTING PLATE

OIL CAPACITIES

Ø100mm PISTON ACCUMULATOR = 7.42 l/EACH
Ø127mm PISTON ACCUMULATOR = 11.23 l
TOTAL CAPACITY = 26.07 l

NITROGEN PRE-CHARGE

3 X PISTON ACCUMULATORS = 55 b (800 lbf²)



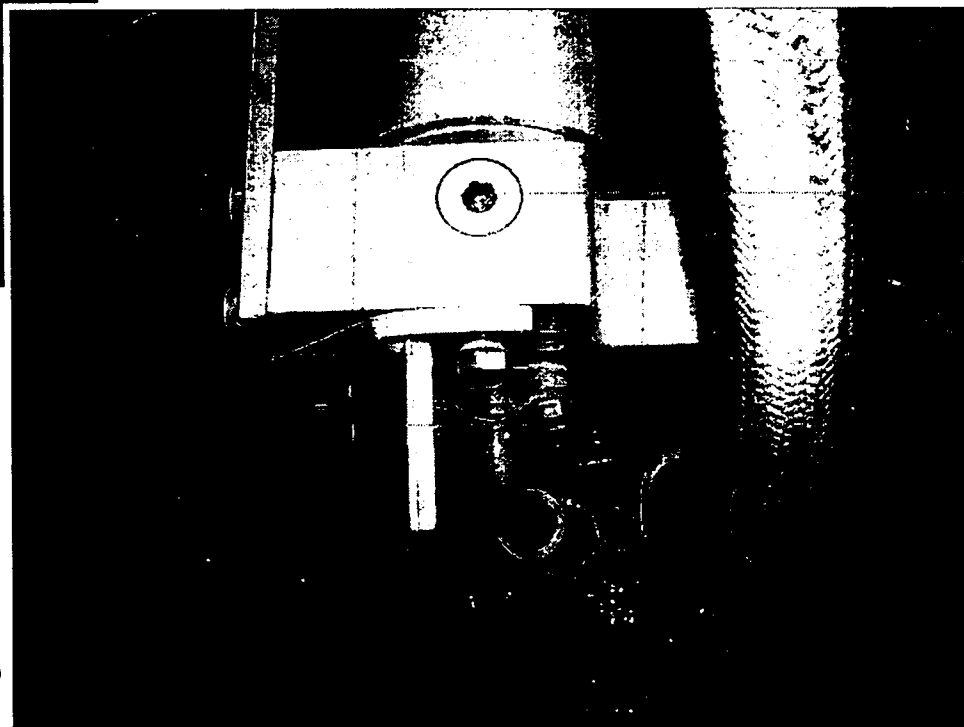
**HIGH
PRESSURE**

STEERING ACCUMULATOR TR70/100 (3)



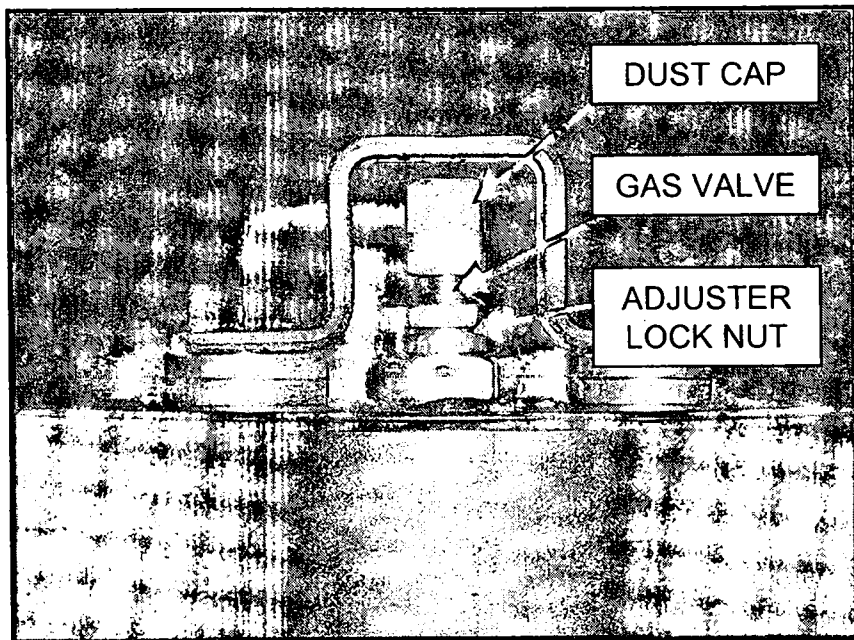
Ⓒ EACH PISTON ACCUMULATOR HAS TO BE CHECKED OR CHARGED INDIVIDUALLY TO 55 b (800 lbft²)

UNIVERSAL CHARGING KIT PART NO. 9359489

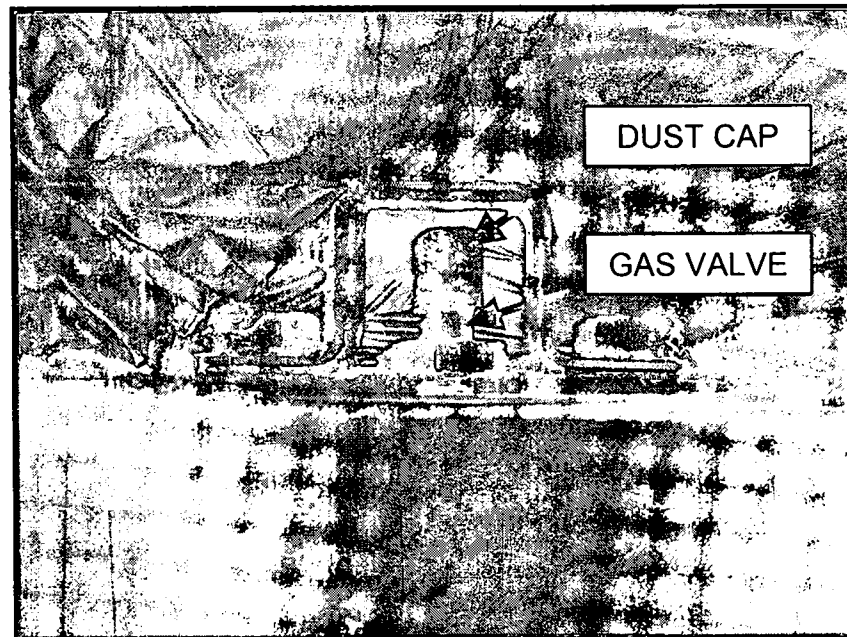


OIL FLOW INTO PISTON ACCUMULATORS VIA OIL Ⓒ
MANIFOLD BLOCK

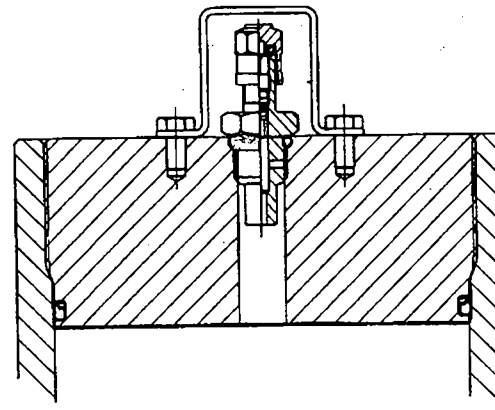
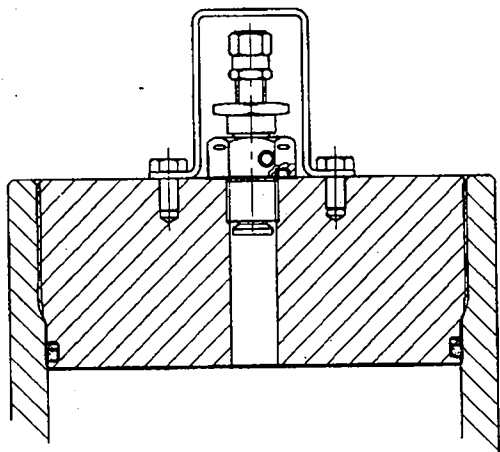
NITROGEN CHARGING VALVES



POPPET-TYPE VALVE

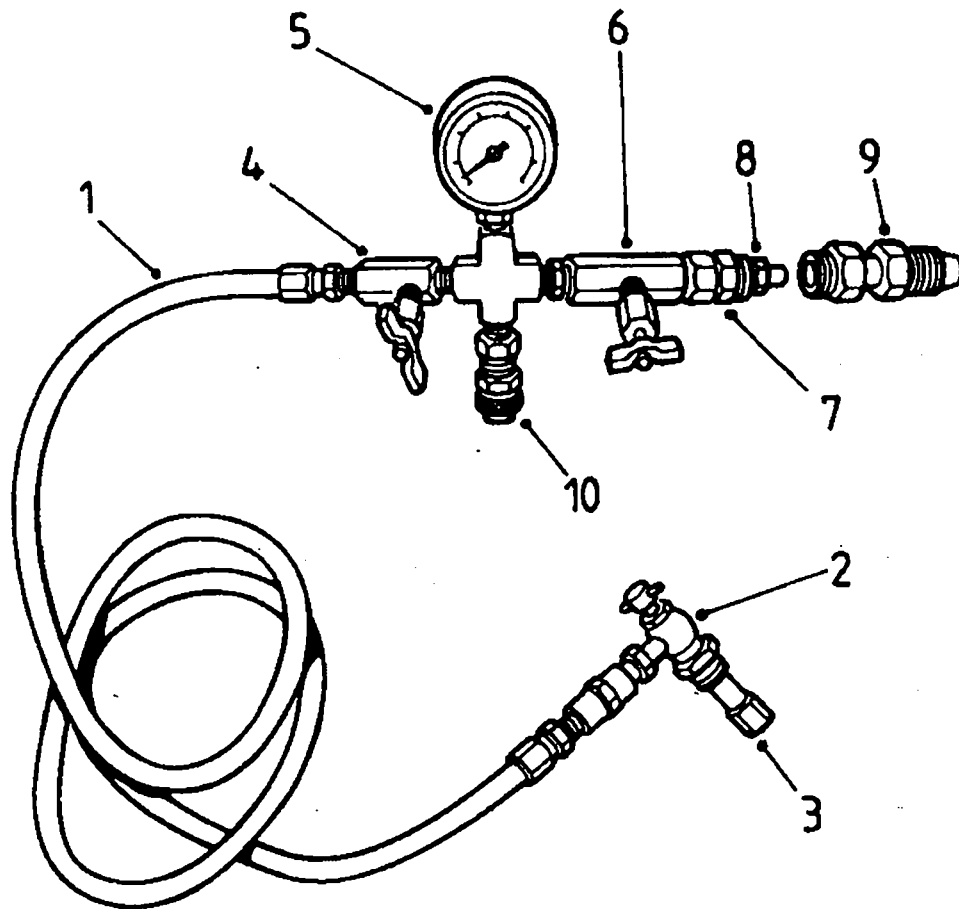


SCHRADER-TYPE VALVE



UNIVERSAL NITROGEN CHARGING/TEST KIT

SUITABLE FOR BOTH POPPET-TYPE AND SCHRADER-TYPE CHARGING VALVES



NITROGEN CHARGING/TEST KIT - 9359489

- 1 HOSE
- 2 INFLATION (CHUCK) VALVE
- 3 VALVE EXTENSION
- 4 ACCUMULATOR SHUT-OFF VALVE
- 5 PRESSURE GAUGE
- 6 CYLINDER SHUT-OFF VALVE
- 7 ADAPTOR-GLAND
- 8 NUT-GLAND
- 9 CYLINDER ADAPTOR
- 10 BLEEDER VALVE

NITROGEN CHARGE TEST PROCEDURE

POPPET-TYPE VALVE

- 1 RELIEVE PRESSURES FROM ALL CHARGED CIRCUITS, BY TURNING STEERING WHEEL, SEVERAL TIMES AND/OR DEPRESSING BRAKE PEDAL SEVERAL TIMES.
- 2 REMOVE PROTECTIVE COVER AND DUST CAP FROM ACCUMULATOR TO OBTAIN ACCESS TO THE GAS VALVE.
- 3 ENSURE BLEEDER VALVE IS CLOSED ON THE CHARGE KIT AND DOES NOT LEAK.
- 4 ENSURE BOTH ACCUMULATOR AND CYLINDER SHUT-OFF VALVES ARE CLOSED ON THE CHARGE KIT.
- 5 ENSURE INFLATION VALVE IS FULLY RAISED ON CHARGE KIT BY TURNING T-BAR COUNTER CLOCKWISE (CCW).
- 6 SCREW INFLATION VALVE AND CHARGE KIT ONTO SCHRADER CHARGE VALVE.
- 7 OPEN POPPET-TYPE GAS VALVE BY LOOSENING THE ADJUSTER LOCK NUT.
- 8 OPEN INFLATION VALVE BY TURNING T-BAR CLOCKWISE (CW), THIS BEGINS TO OPEN THE POPPET VALVES GAS VALVE.
- 9 TO READ ACCUMULATOR NITROGEN PRE-CHARGE, SLOWLY OPEN THE ACCUMULATOR SHUT-OFF VALVE AND OBSERVE MAXIMUM PRESSURE REGISTERED ON GAUGE.
- 10 MAXIMUM PRESSURE READING OBSERVED ON THE GAUGE IS THE ACCUMULATOR NITROGEN PRE-CHARGE.

SCHRADER-TYPE VALVE

- 1 RELIEVE PRESSURES FROM ALL CHARGED CIRCUITS, BY TURNING STEERING WHEEL SEVERAL TIMES AND/OR DEPRESSING BRAKE PEDAL SEVERAL TIMES.
- 2 REMOVE PROTECTIVE COVER AND DUST CAP FROM ACCUMULATOR TO OBTAIN ACCESS TO THE GAS VALVE.
- 3 ENSURE BLEEDER VALVE IS CLOSED ON THE CHARGE KIT AND DOES NOT LEAK.
- 4 ENSURE BOTH ACCUMULATOR AND CYLINDER SHUT-OFF VALVES ARE CLOSED ON THE CHARGE KIT.
- 5 ENSURE INFLATION VALVE IS FULLY RAISED ON CHARGE KIT BY TURNING T-BAR COUNTER CLOCKWISE (CCW).
- 6 SCREW INFLATION VALVE AND CHARGE KIT ONTO SCHRADER CHARGE VALVE.
- 7 OPEN INFLATION VALVE BY TURNING T-BAR CLOCKWISE (CW), THIS BEGINS TO OPEN THE SCHRADER VALVES GAS VALVE.
- 8 TO READ ACCUMULATOR NITROGEN PRE-CHARGE, SLOWLY OPEN THE ACCUMULATOR SHUT-OFF VALVE AND OBSERVE MAXIMUM PRESSURE REGISTERED ON GAUGE.
- 9 MAXIMUM PRESSURE READING OBSERVED ON THE GAUGE IS THE ACCUMULATOR NITROGEN PRE-CHARGE.

NITROGEN CHARGE TEST PROCEDURE

POPPET-TYPE VALVE

PRE-CHARGE PRESSURE OK

- 11 TURN INFLATION VALVE CCW TO RAISE VALVE.
- 12 RE-LOCK ADJUSTER NUT ON POPPET-TYPE VALVE.
- 13 OPEN BLEEDER VALVE TO DISIPATE GAUGE PRESSURE.
- 14 CLOSE ACCUMULATOR SHUT-OFF VALVE.
- 15 REMOVE CHARGING KIT FROM POPPET-TYPE VALVE.
- 16 ENSURE POPPET-TYPE VALVE IS SEALING EFFECTIVELY.
- 17 REPLACE DUST CAP AND PROTECTIVE COVER.

SCHRADER-TYPE VALVE

PRE-CHARGE PRESSURE OK

- 10 TURN INFLATION VALVE CCW TO RAISE VALVE.
- 11 OPEN BLEEDER VALVE TO DISIPATE GAUGE PRESSURE.
- 12 CLOSE ACCUMULATOR SHUT-OFF VALVE.
- 13 REMOVE CHARGING KIT FROM SCHRADER-TYPE VALVE.
- 14 ENSURE SCHRADER-TYPE VALVE IS SEALING EFFECTIVELY.
- 15 REPLACE DUST CAP AND PROTECTIVE COVER.



**DO NOT REMOVE
CHARGING KIT UNTIL
ALL EXCESS NITROGEN
HAS BEEN DISIPATED**

AMB ENT TEMP. - NITROGEN CHARGE

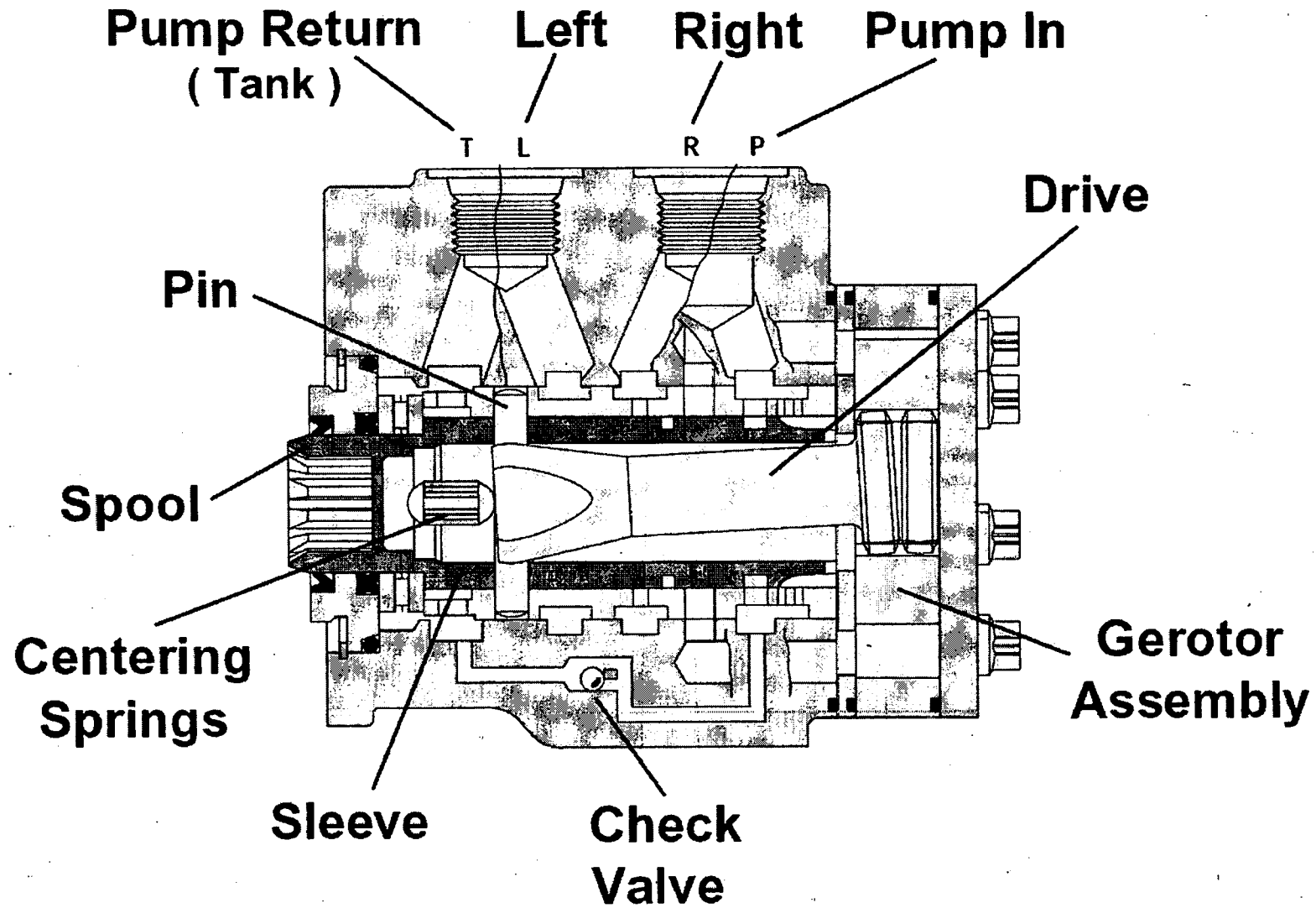
AMBIENT TEMPERATURE		NITROGEN PRE-CHARGE PRESSURE	
C		bar	lbf/
-18	0	47.7	692
-12	10	48.8	708
-7	20	49.8	723
-1	30	50.9	738
5	40	52	754
10	50	53	769
16	60	54.1	785
21	70	55	800
27	80	56.2	815
32	90	57.3	831
38	100	58.3	846
43	110	59.4	862
49	120	60.5	877
54	130	61.5	892

STEERING VALVE - ORB TROL (4)

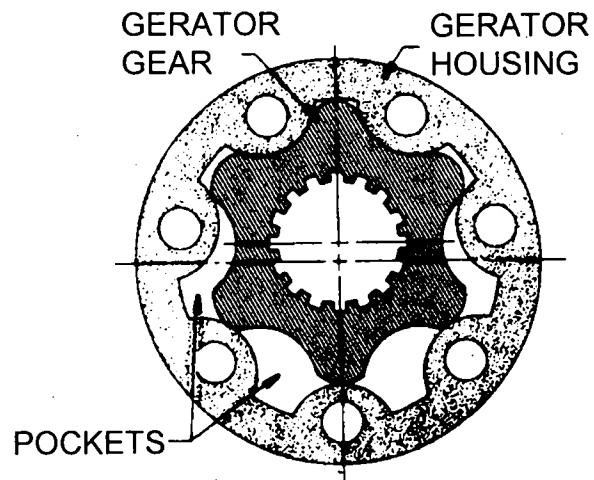


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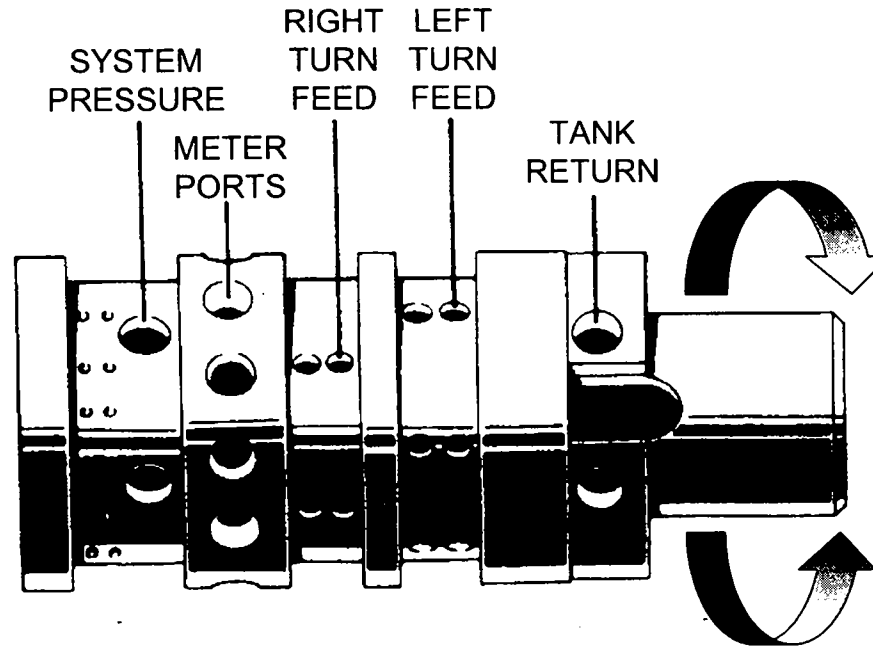
STEERING VALVE - ORBITROL SECTION



STEERING VALVE - SPOOL/SLEEVE/GENERATOR

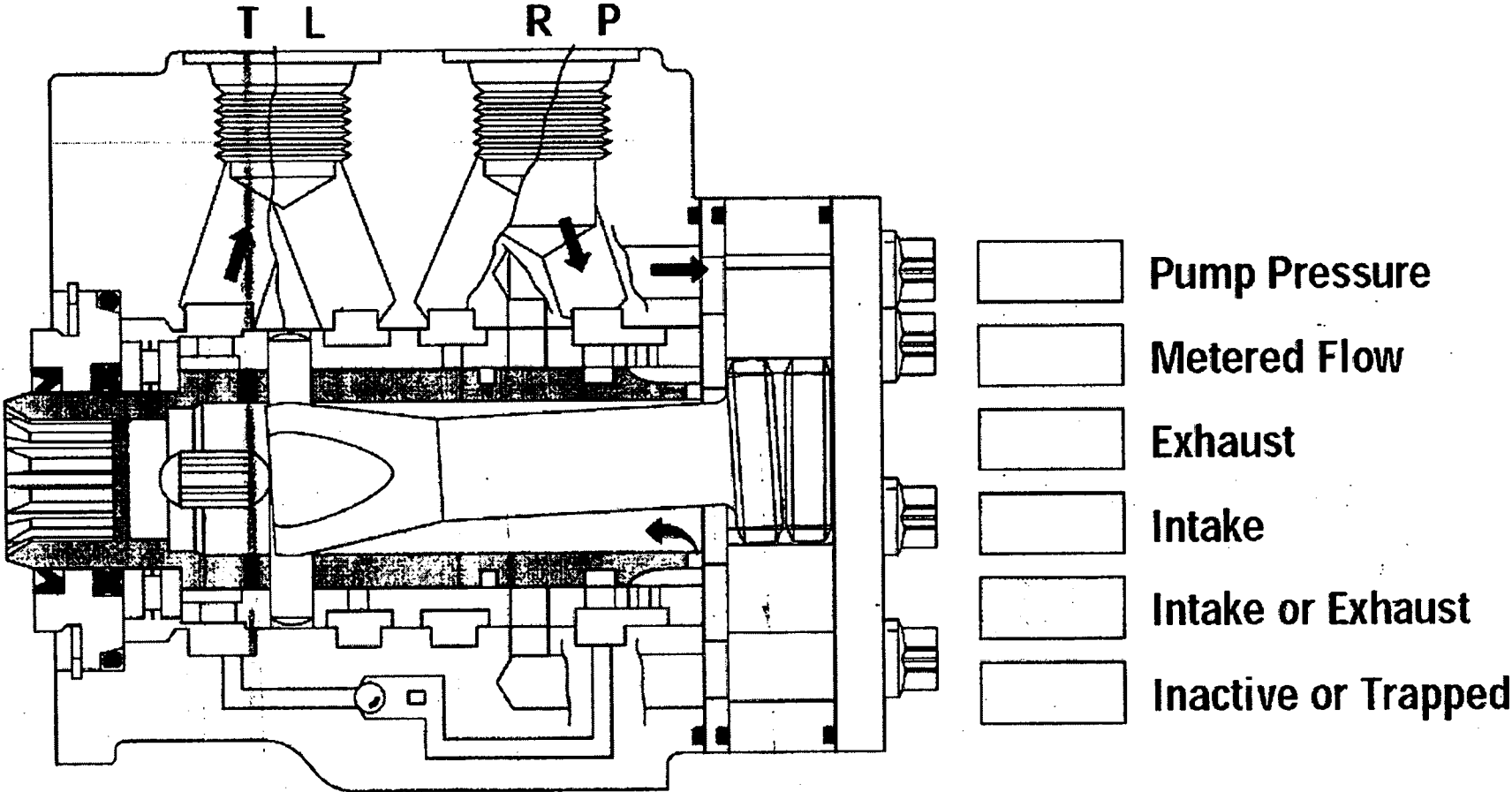


GERATOR GEAR SET

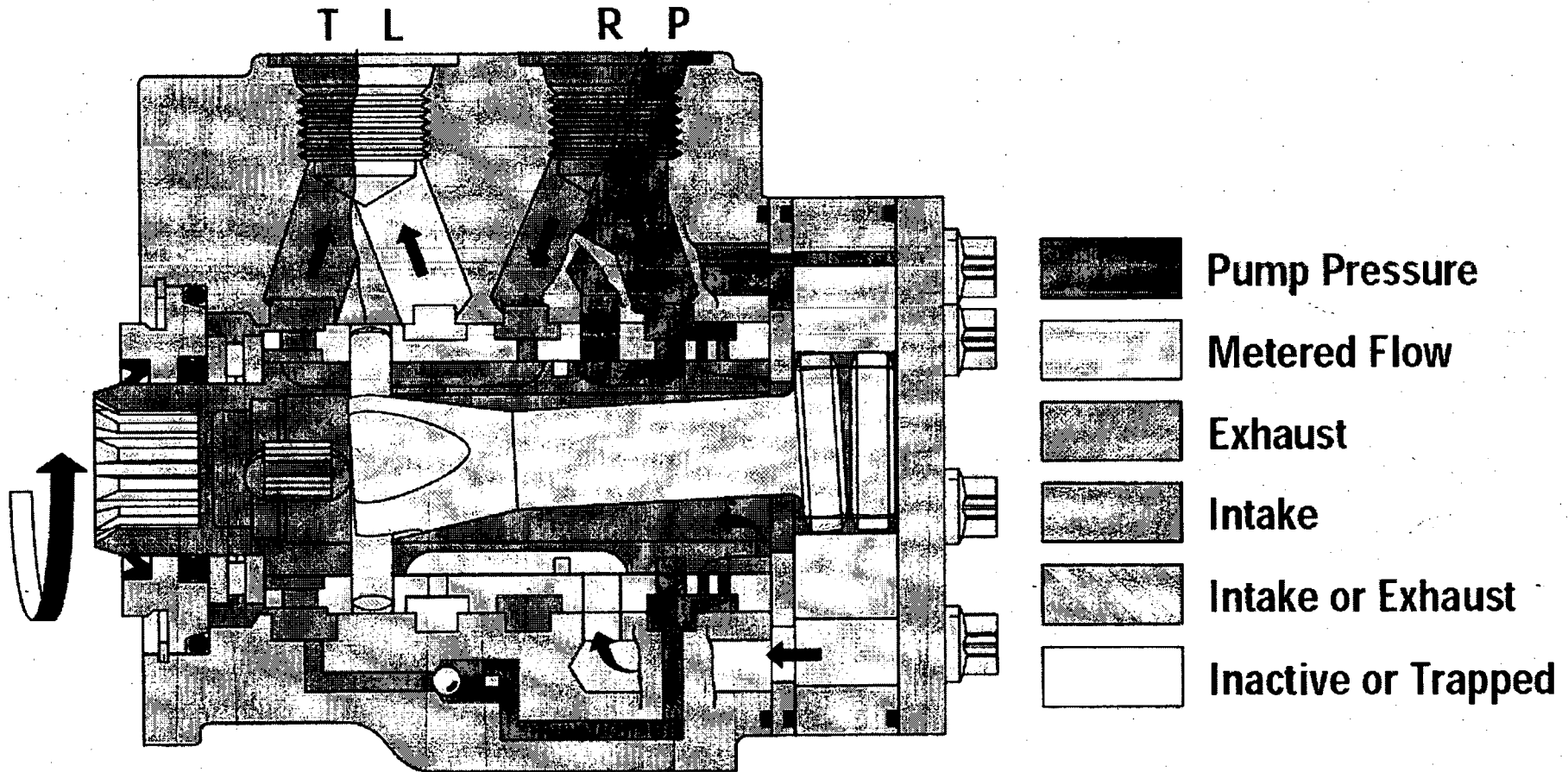


SPOOL AND SLEEVE PORTING

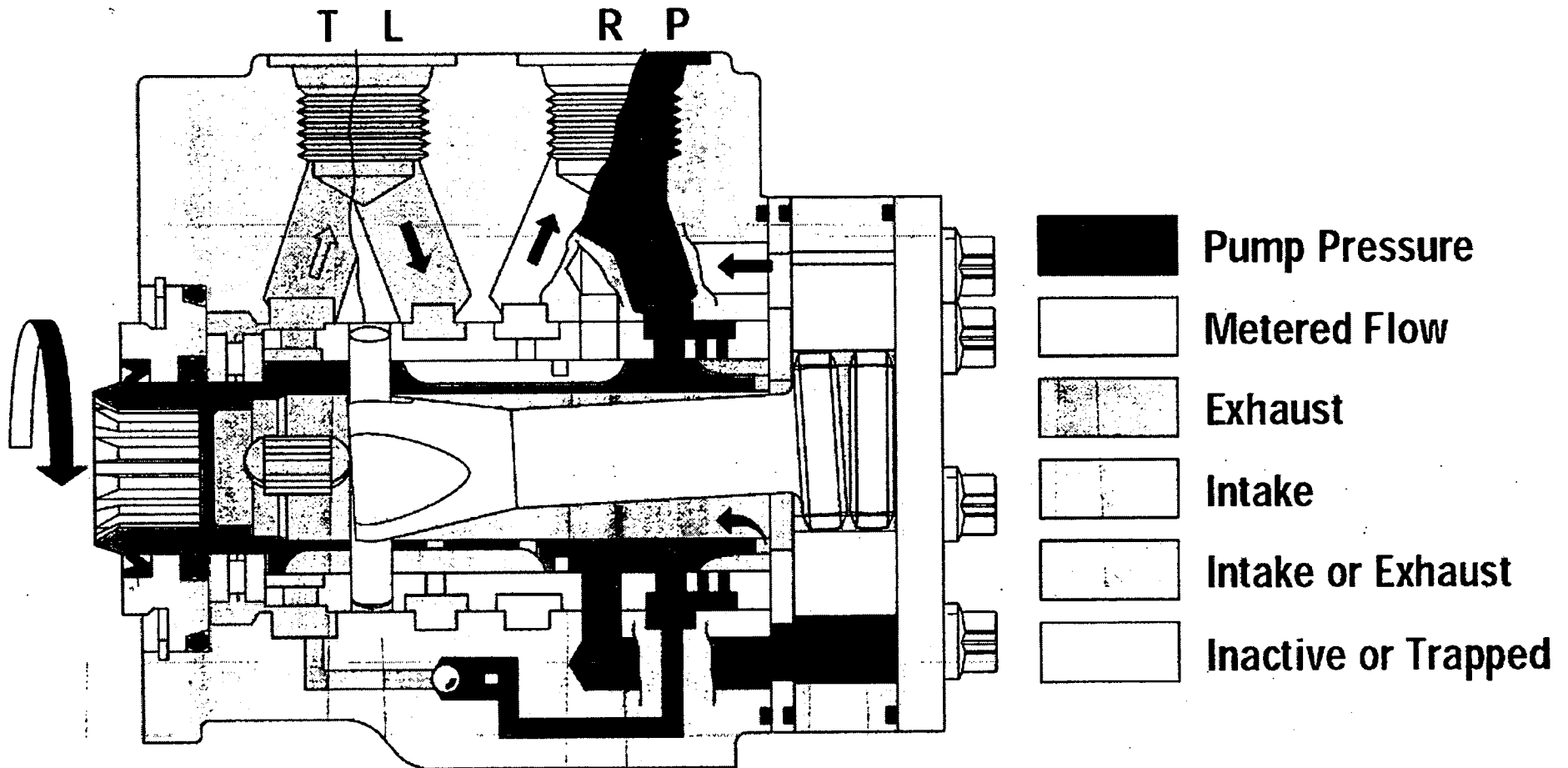
STEERING VALVE - NEUTRAL STEER



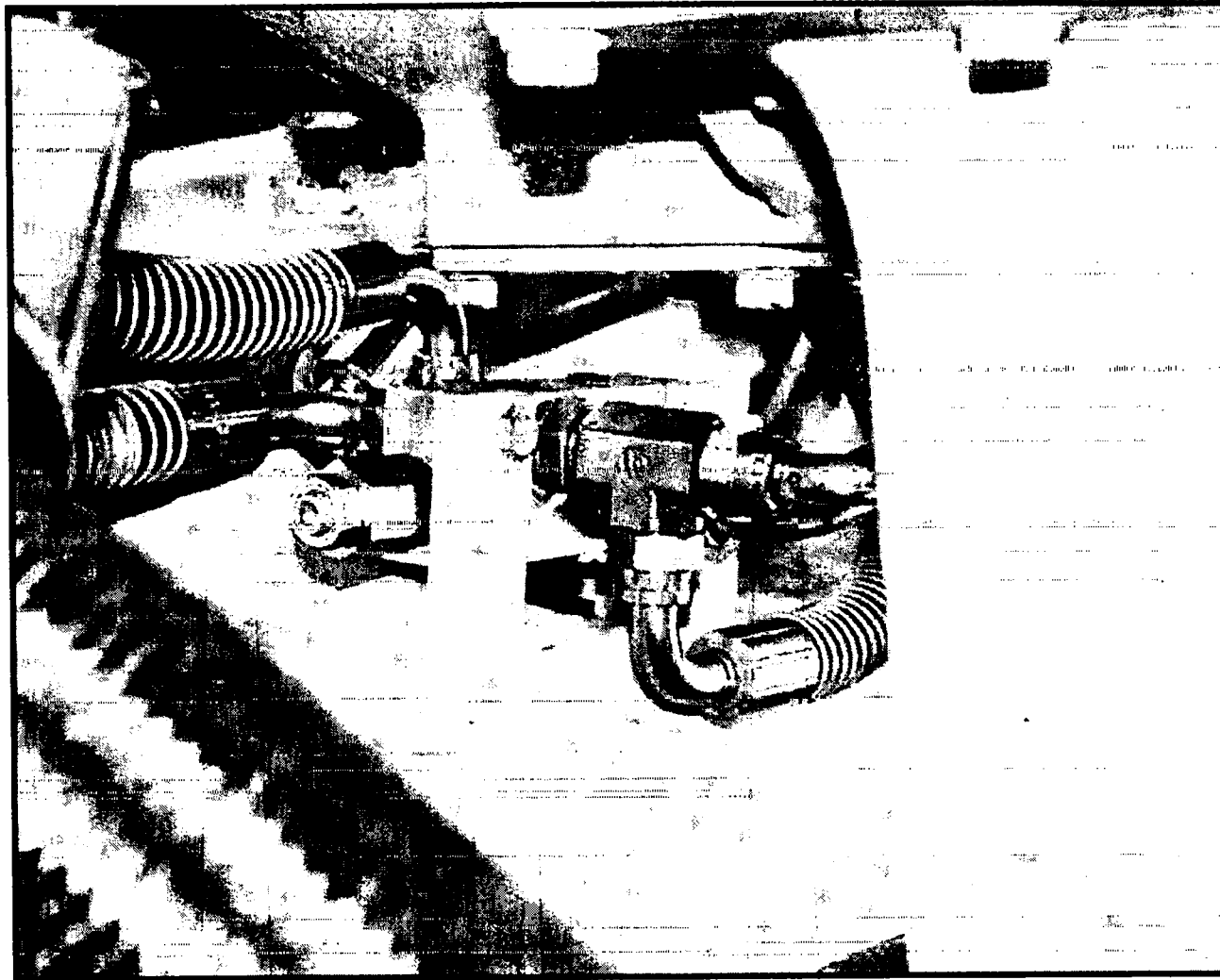
STEERING VALVE - LEFT STEER



STEERING VALVE - RIGHT STEER

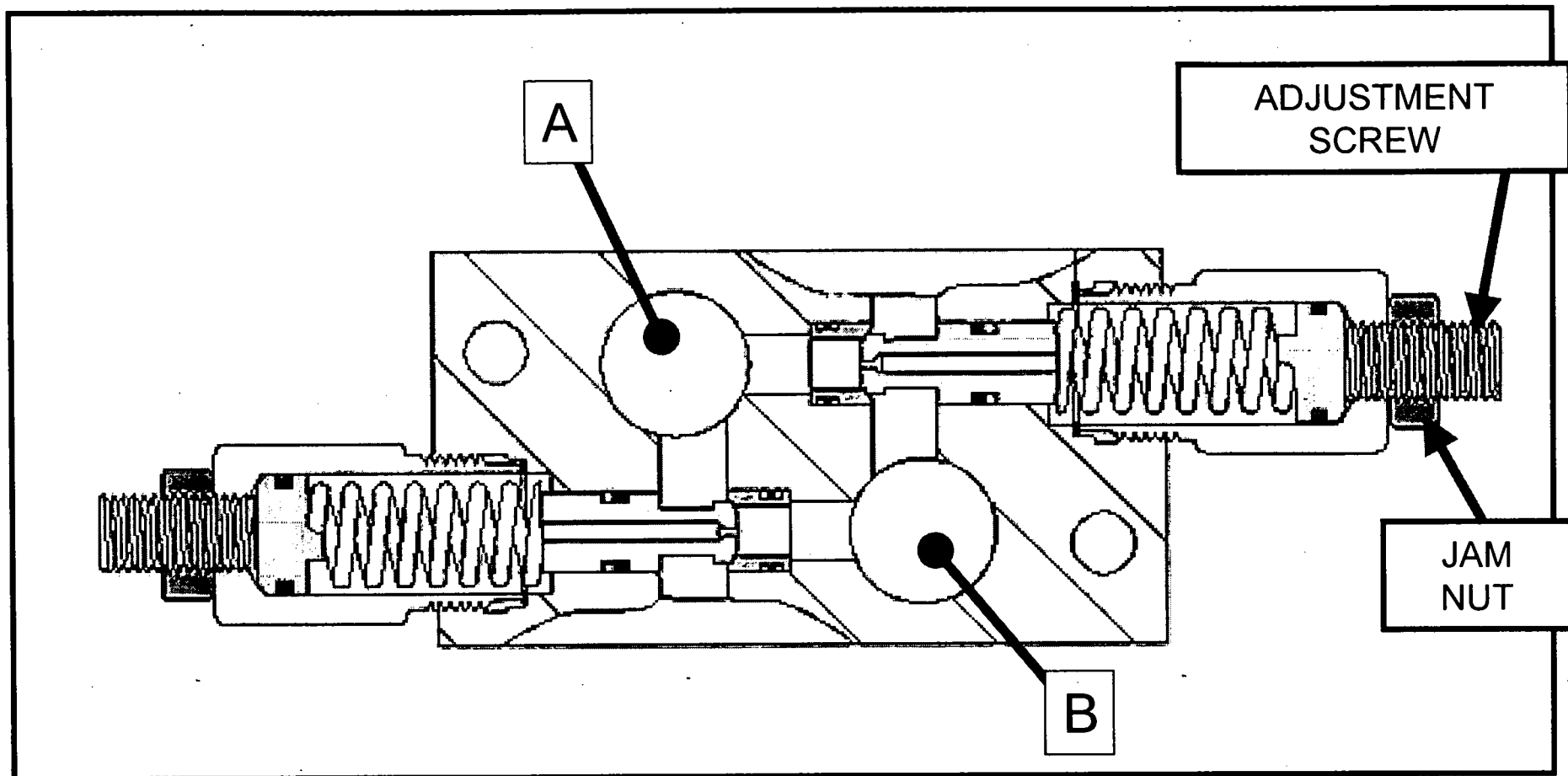


DOUBLE RELIEF VALVE (SHOCK) (6)



DOUBLE RELIEF VALVE (SHOCK)

STEERING SHOCK LOAD VALVE (6)

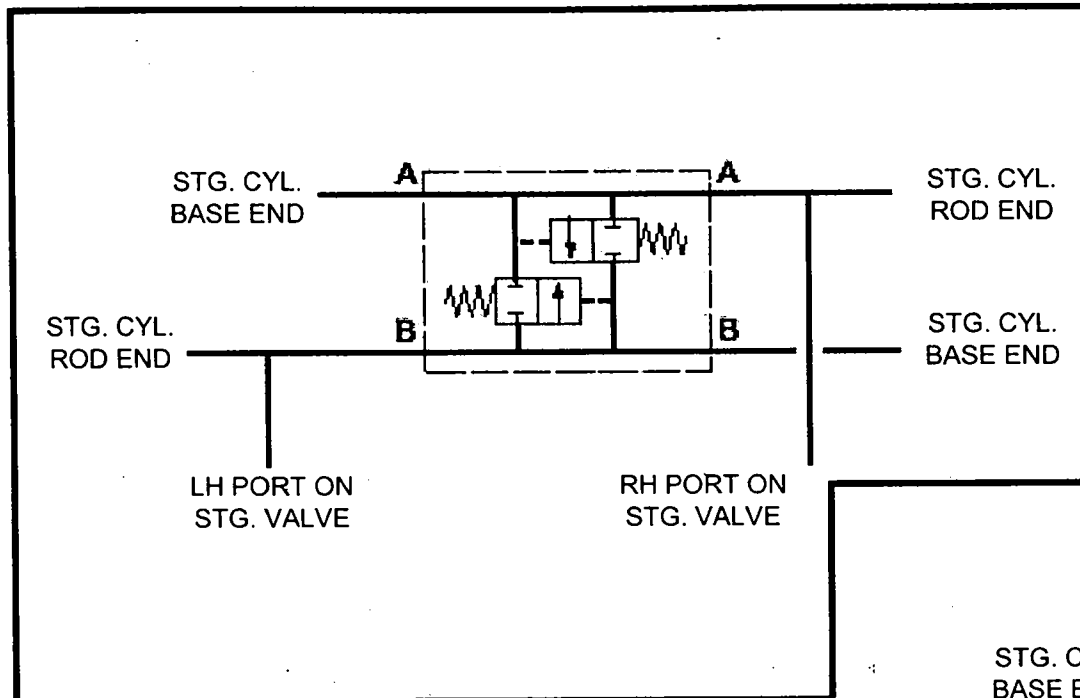


RELIEF VALVES SETTING - 172 BAR (2500 PSI)

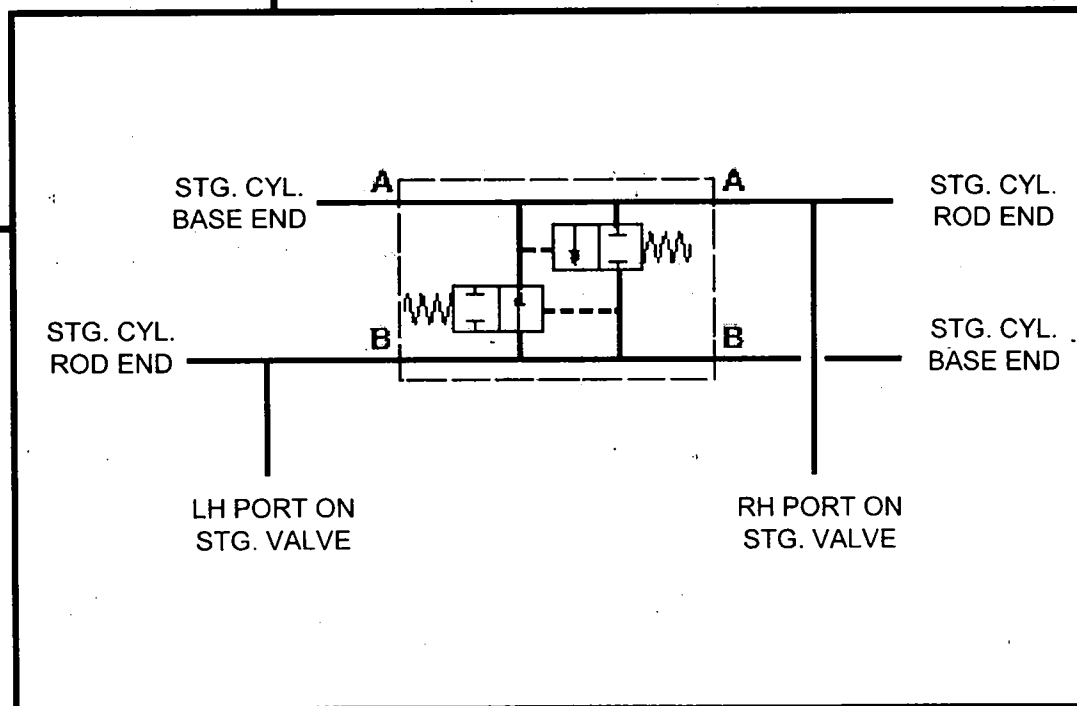


STEERING SHOCK LOAD SCHEMATICS (6)

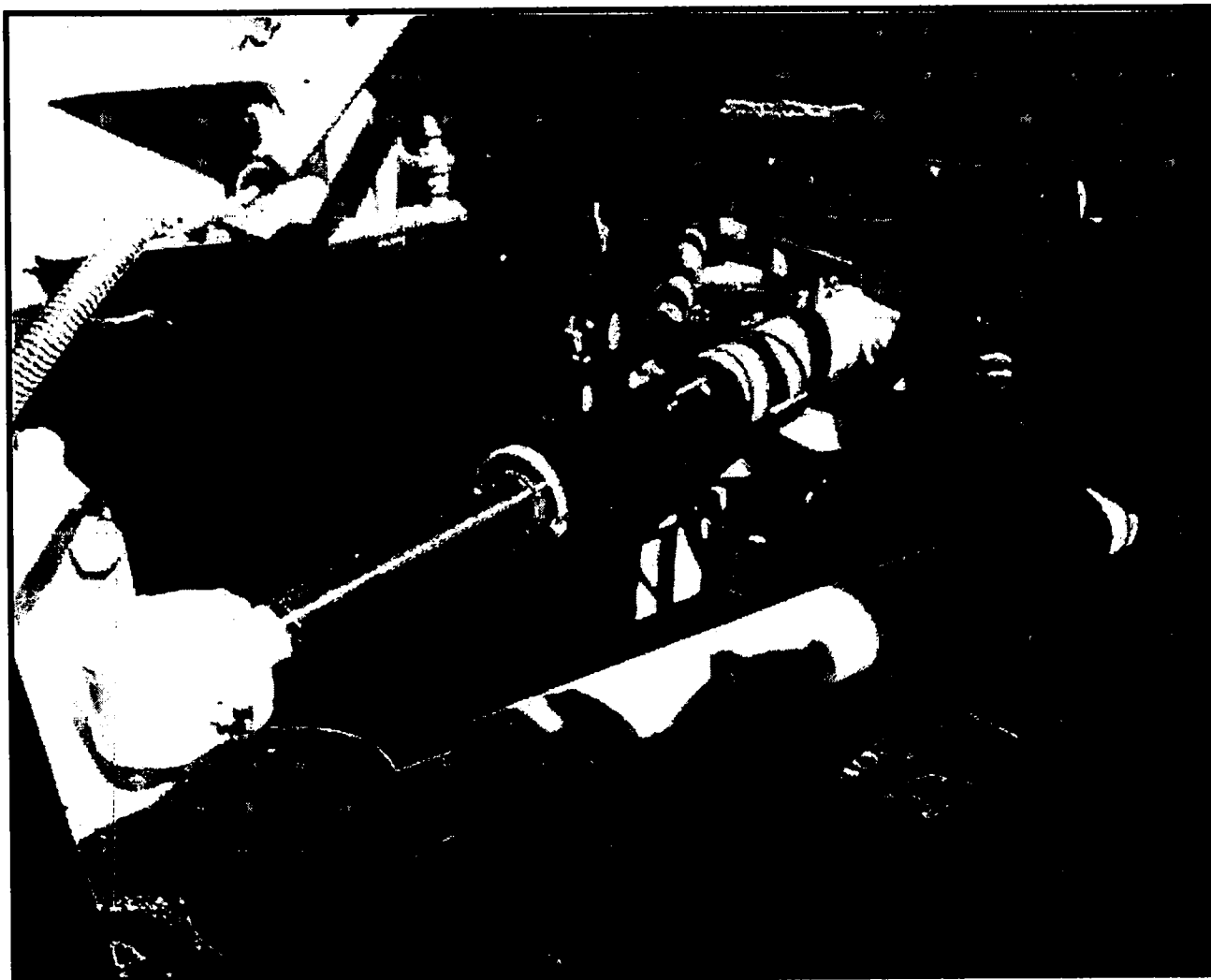
NEUTRAL POSITION



ACTIVE POSITION

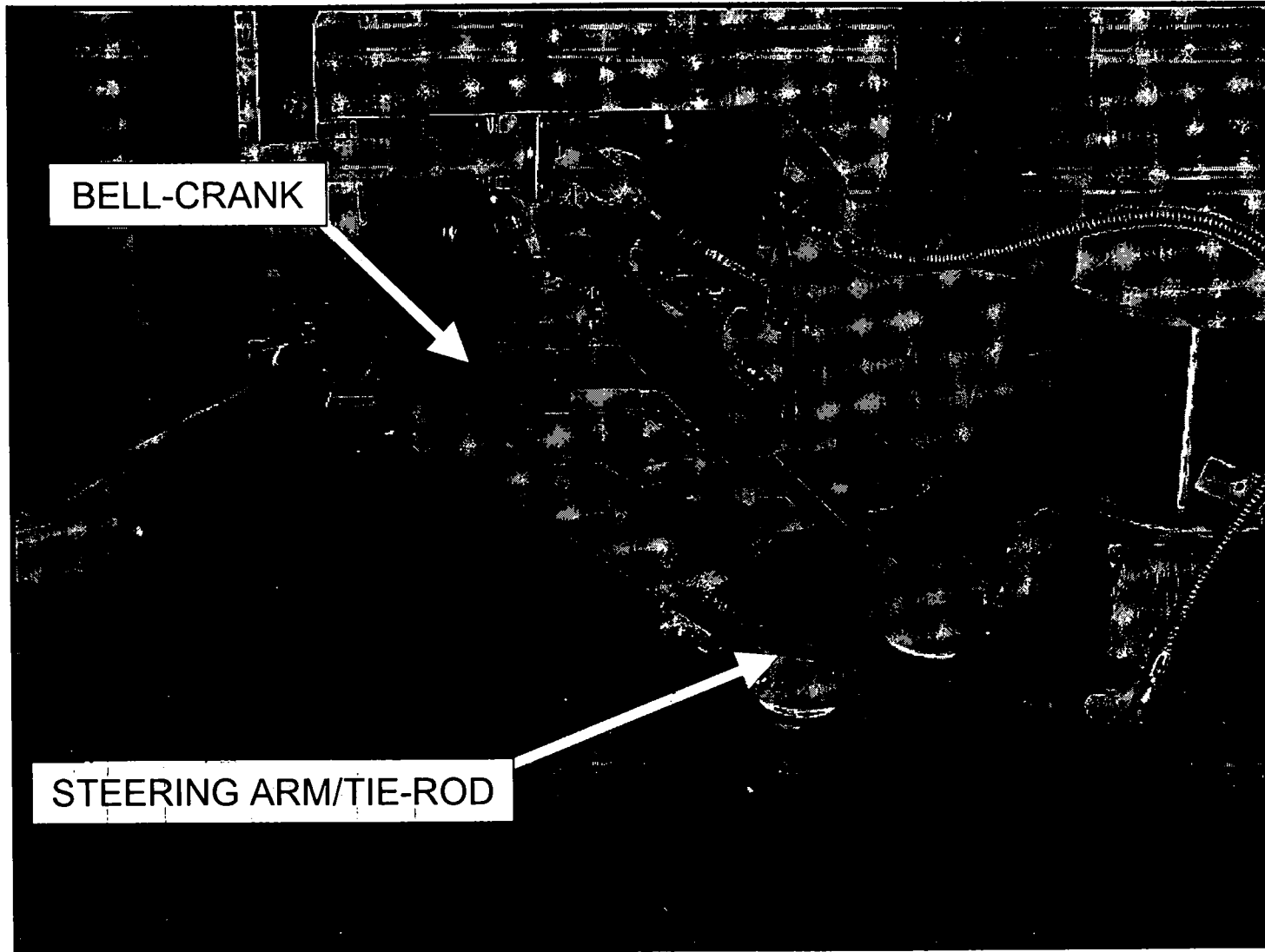


STEERING CYLINDERS (7)

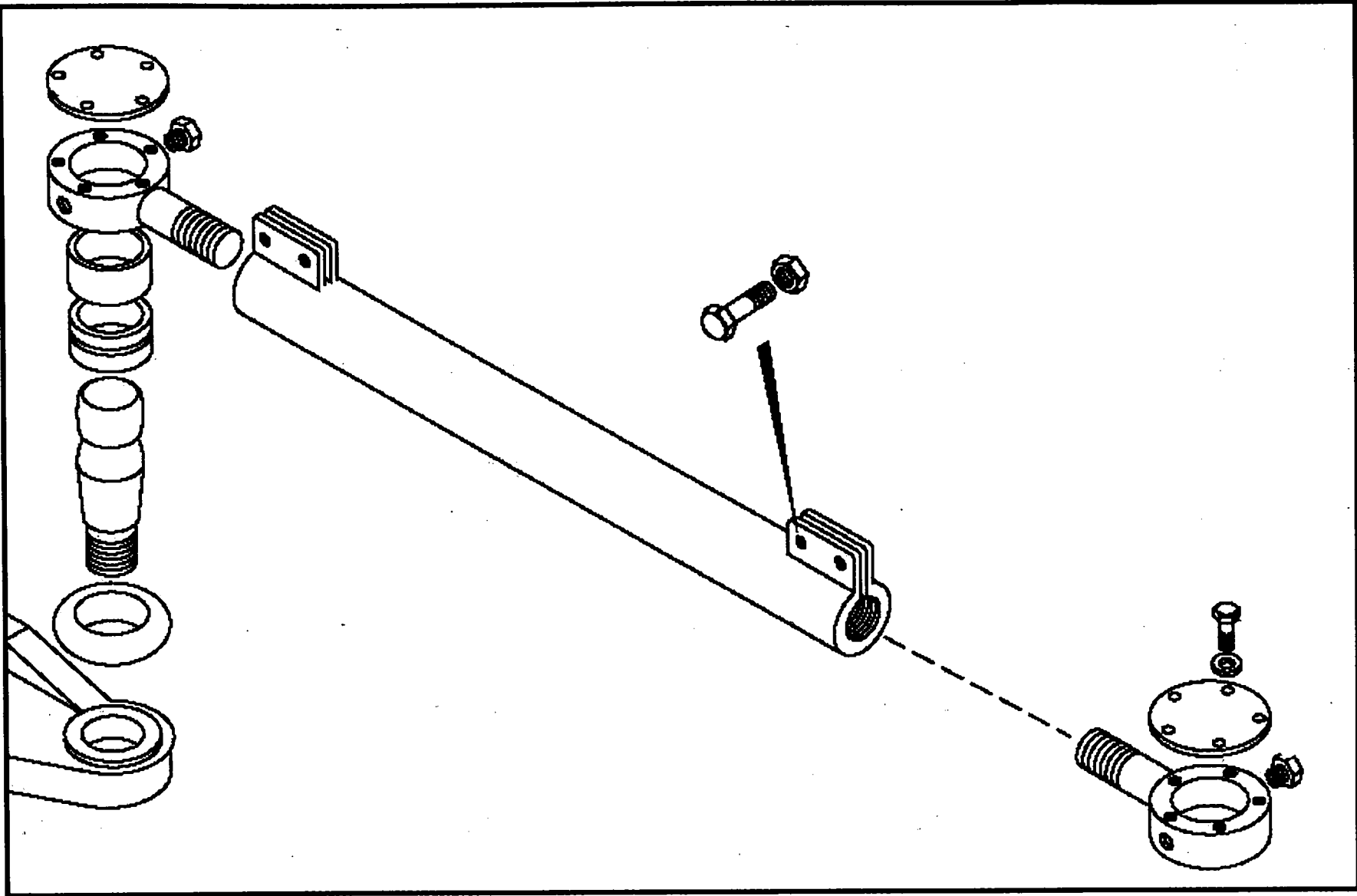


STEERING CYLINDERS (TYP.)

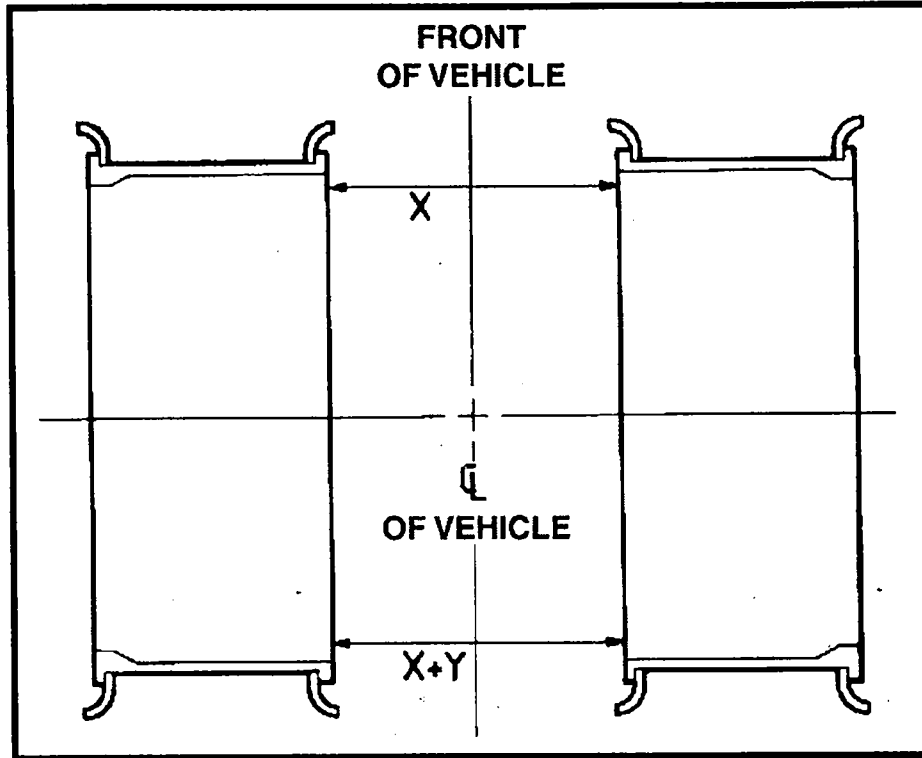
STEERING MECHANISM



TIE-ROD ADJUSTMENT



WHEEL ALIGNMENT



	X-PLY	RADIAL
TR40	10-16	10-16
TR45	10-16	10-16
TR60	10-16	10-16
TR70	13-19	10-16
TR100	13-19	13-19

(mm)

STEERING SYSTEM - NEUTRAL STEER

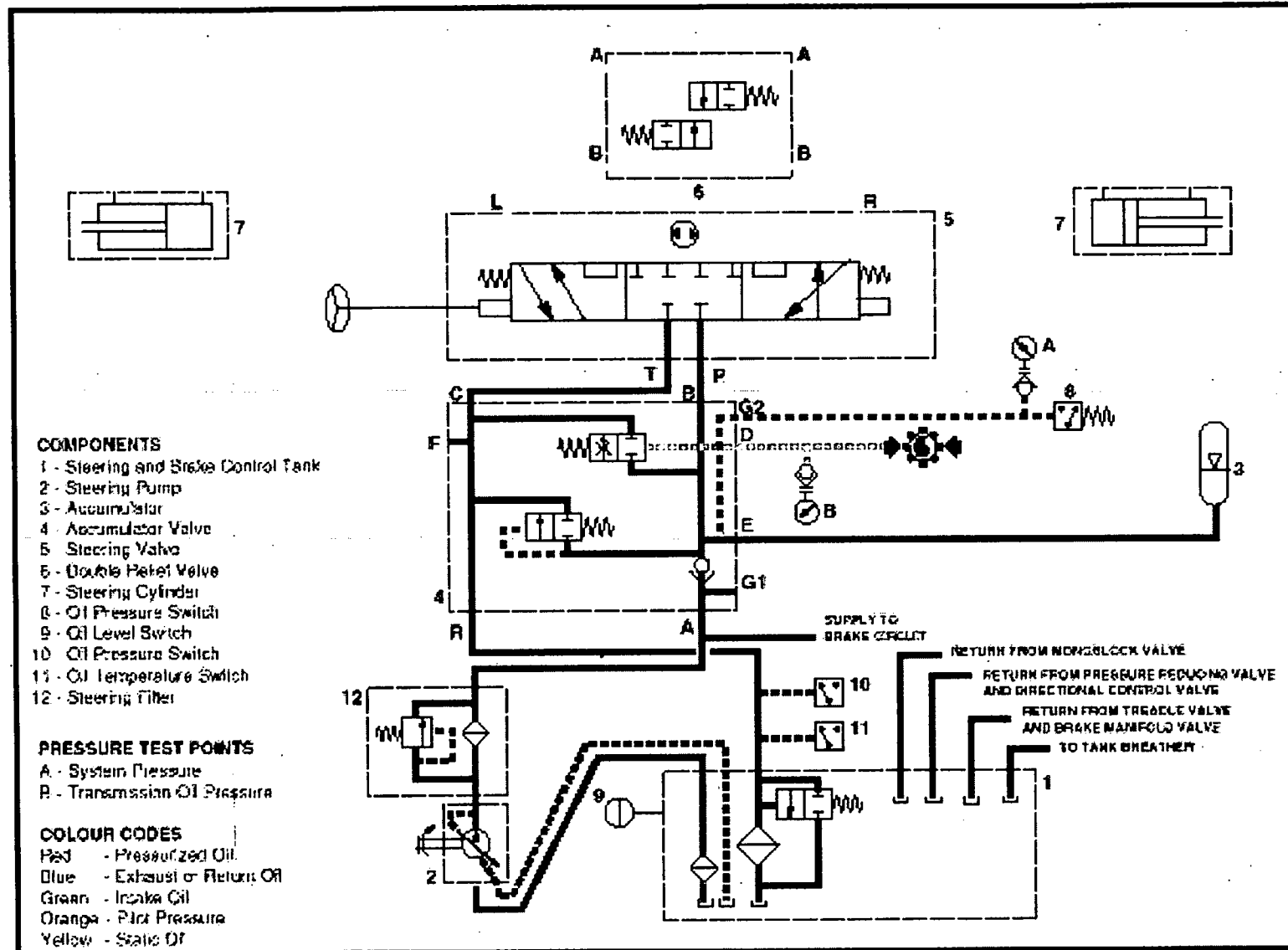
TR40

TR45

TR60

TR70

TR100



STEERING SYSTEM - LEFT TURN

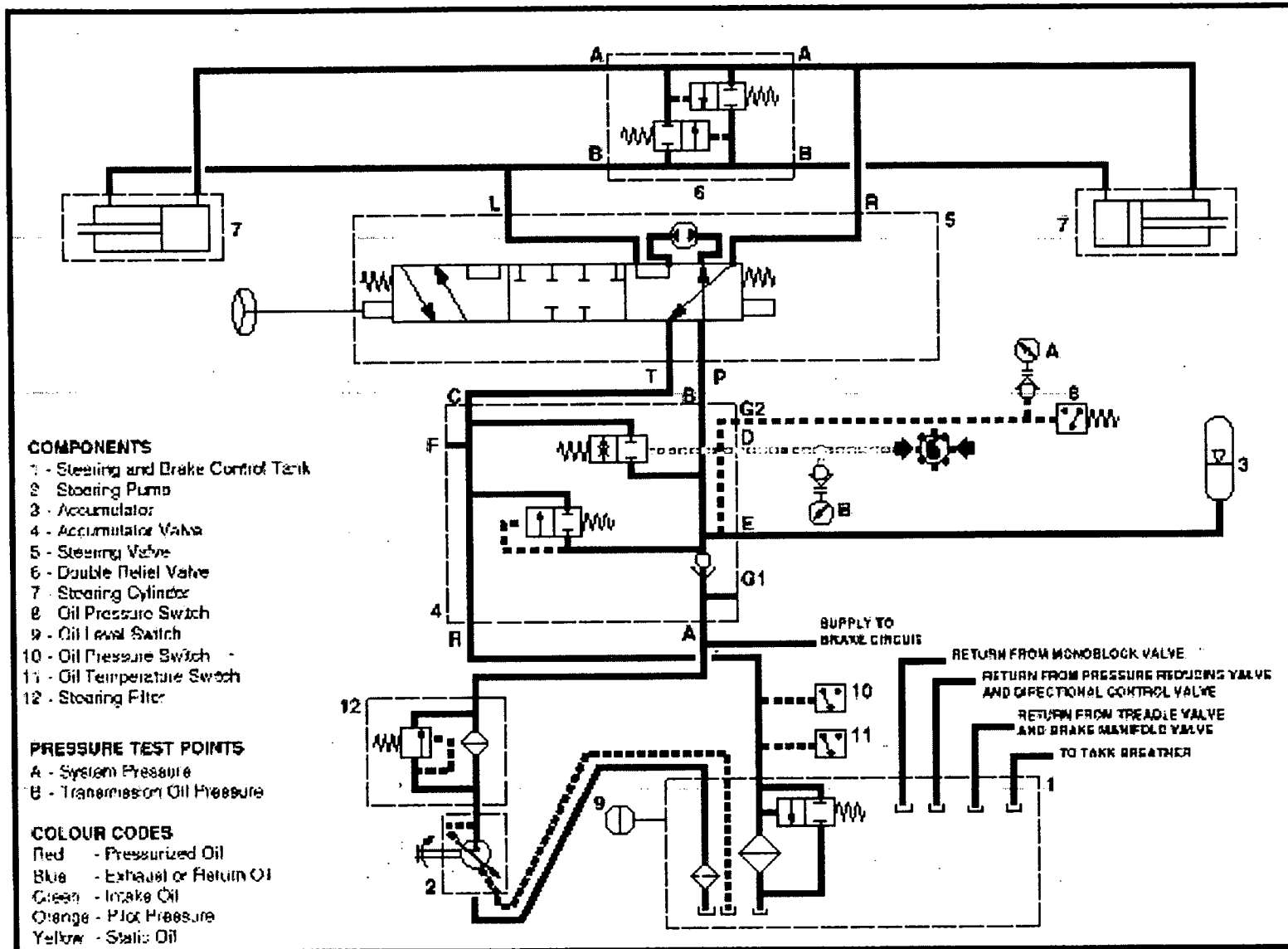
TR40

TR45

TR60

TR70

TR100



STEERING SYSTEM - RIGHT TURN

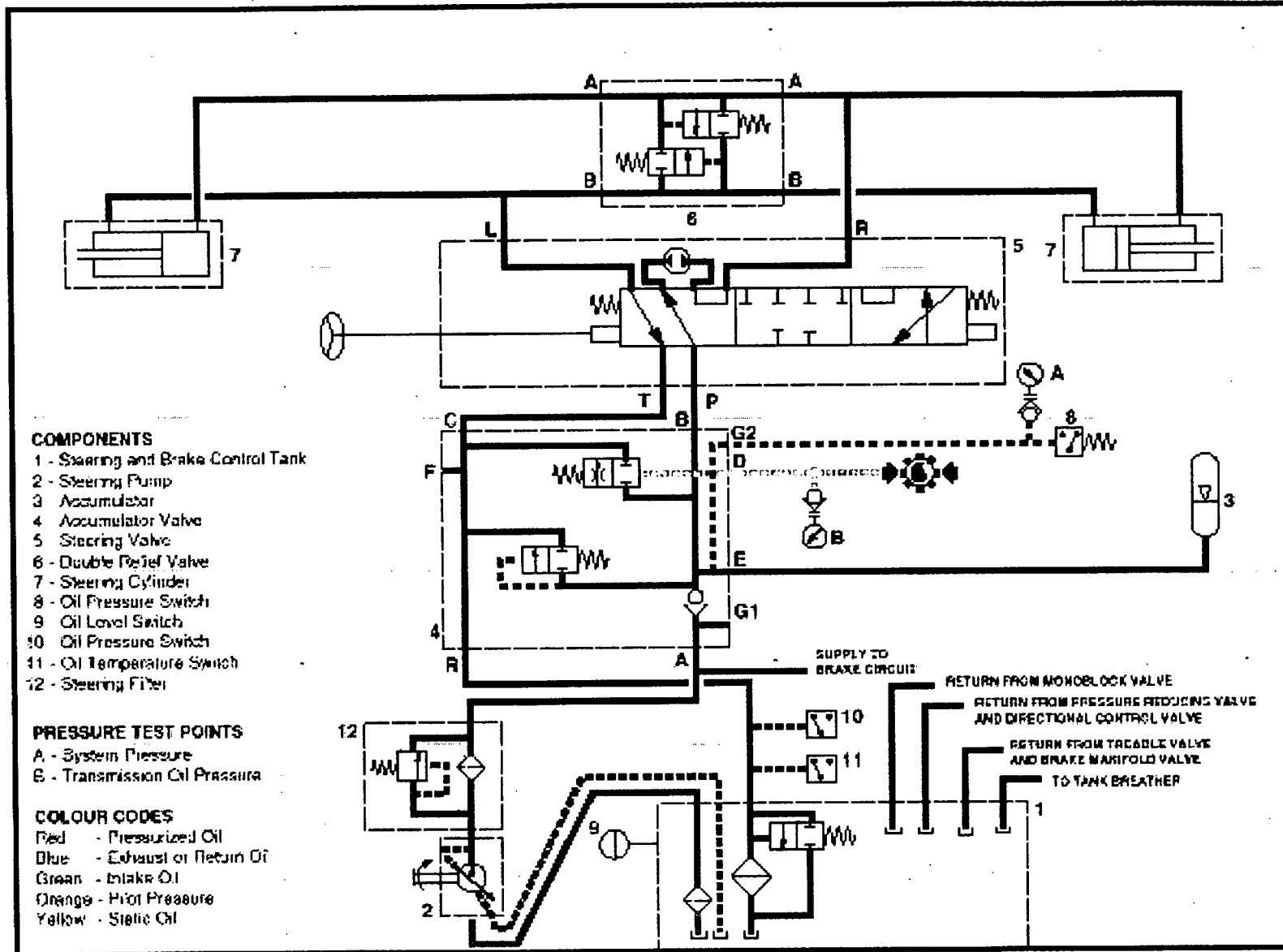
TR40

TR45

TR60

TR70

TR100



STEERING SYSTEM - SHOCK LOAD

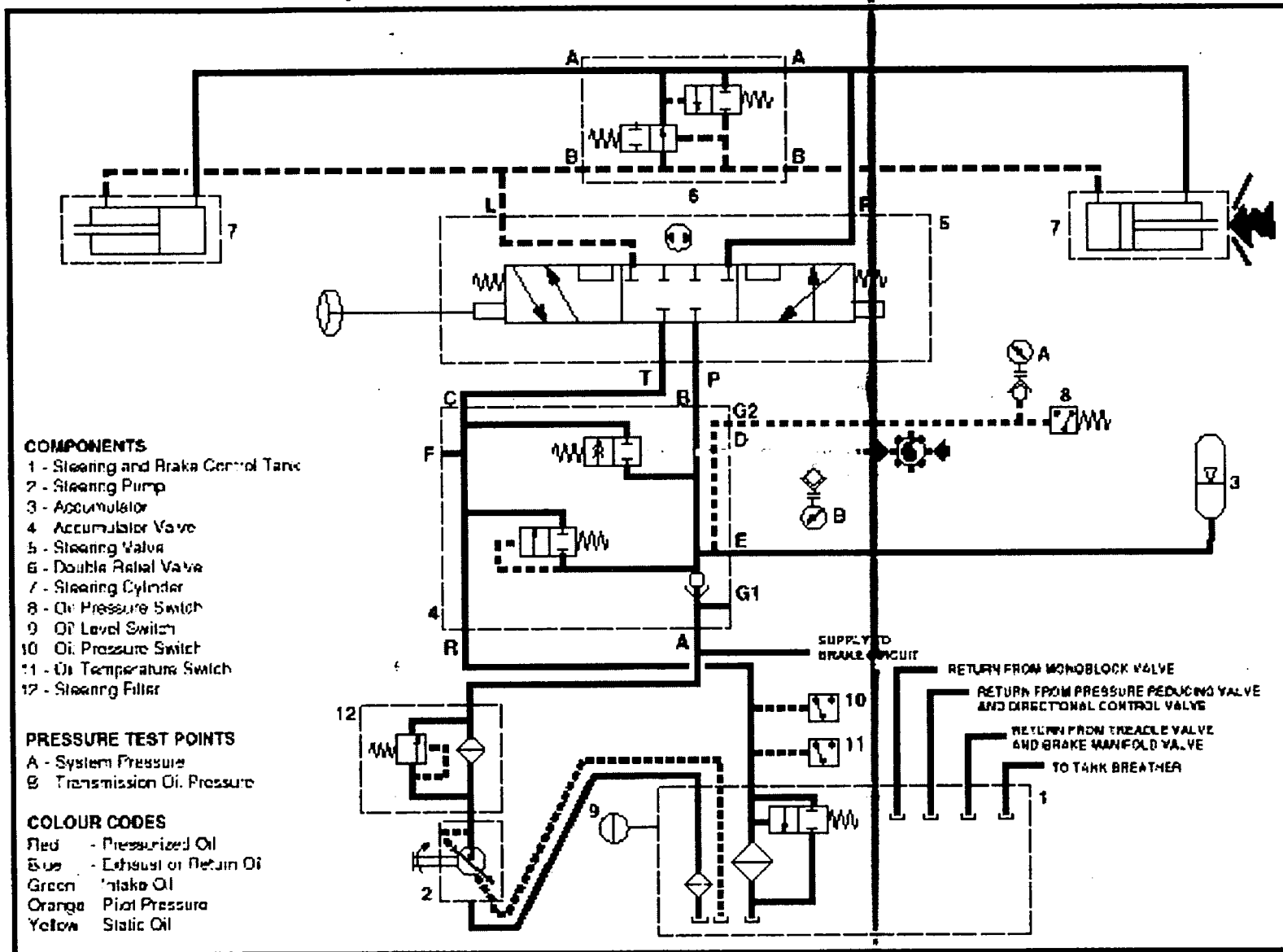
TR40

TR45

TR60

TR70

TR100



LUBRICATION INFORMATION



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O.D. . – OIL DRAIN INTERVALS

Engine Oil

500 Hours

Transmission Oil

1000 Hours

Final Drives

1500 Hours

Hydraulic Oils

2000 Hours

Rear Brake Packs

2000 Hours

All change and service periods are recommendations based on average operating conditions.

**DRAIN INTERVALS ARE
RECOMMENDATIONS ONLY.**

Lubricant and service periods must be established on the basis of individual work conditions, utilizing oil sampling.

Complete drain recommended after first 150 hours of operation.

S.O.S. – SCHEDULED O I L S A M P L I N G

Engine Oil

250 Hours

Transmission Oil

500 Hours

Final Drives

500 Hours

Hydraulic Oils

500 Hours

Rear Brake Packs

1000 Hours

Recommendations;

Use SOS to monitor condition & maintenance requirements of your equipment.

SOS taken when oil is warm & particles suspended. Ensuring sample is representative of oil compartment.

When using drain stream for SOS, do not collect from initial or final draining.

OIL TYPES

Engine Oil

Ambient temperature -15° to 45°C

15W-40_(CH4)

Transmission Oil

Engine oil with 1.00% sulphated ash

15W-40

Final Drives

Ambient temperature -18° to 32°C

80W-90

Hydraulic Oils

Ambient temperature -18° to 32°C

10W

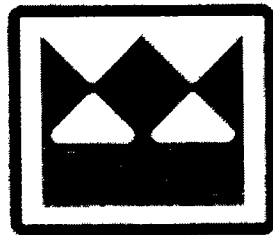
Rear Brake Packs

As Hydraulic Oils

See maintenance manual for regional recommended oil types

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CUSTOMER SUPPORT DEPARTMENT

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